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NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

CHINA'S EXCHANGE RATE POLICY:
A DOUBLE–EDGED SWORD

by

Christopher M. Stolle

December 2013

Thesis Advisor: Robert Looney
Second Reader: Michael Glosny

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REPORT DOCUMENTATION PAGE			*Form Approved OMB No. 0704-0188*
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.			
1. AGENCY USE ONLY ***(Leave blank)***	**2. REPORT DATE** December 2013	**3. REPORT TYPE AND DATES COVERED** Master's Thesis	
4. TITLE AND SUBTITLE CHINA'S EXCHANGE RATE POLICY: A DOUBLE–EDGED SWORD		**5. FUNDING NUMBERS**	
6. AUTHOR(S) Christopher M. Stolle			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000		**8. PERFORMING ORGANIZATION REPORT NUMBER**	
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A		**10. SPONSORING/MONITORING AGENCY REPORT NUMBER**	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government. IRB Protocol number ____N/A____.			
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited		**12b. DISTRIBUTION CODE** A	

13. ABSTRACT (maximum 200 words)

Few policies have such far-reaching influence on an economy as exchange rate controls. Over the last decade, China has maintained an artificially devalued currency by purchasing U.S. dollars while selling domestic Renminbi (RMB). In theory, this practice will benefit the economy by making exports cheaper. Cheap exports have been an important component of the PRC's investment-driven growth model, which transformed China into an economic powerhouse.

Although a devalued currency makes exports cheaper, it also makes imports more expensive. As China's economy evolves, the PRC recognizes the need to shift to a more innovative consumption-driven growth model from the current investment-driven model. This study argues that a devalued RMB is inhibiting this progress because it undermines the consumptive power of its citizens through more expensive imports, financial repression, and capital controls, all of which are closely linked to a devalued RMB.

This study will look at imbalances in China's consumption and production structures affected by a devalued RMB and identify the artificial "winners" and "losers" of the current policy. Also, gradual RMB appreciation over the last decade will be analyzed to determine the extent an increasing RMB has moved economic imbalances.

14. SUBJECT TERMS China, Economy, Exchange Rate Policy, Trade Imbalance, Economic Imbalance, Foreign Exchange Reserves, Manufacturing, Capital Controls, Financial Repression, Job Loss			**15. NUMBER OF PAGES** 81
			16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT Unclassified	**18. SECURITY CLASSIFICATION OF THIS PAGE** Unclassified	**19. SECURITY CLASSIFICATION OF ABSTRACT** Unclassified	**20. LIMITATION OF ABSTRACT** UU

NSN 7540-01-280-5500 Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18

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CHINA'S EXCHANGE RATE POLICY: A DOUBLE–EDGED SWORD

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Lieutenant, United States Navy
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Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES
(FAR EAST, SOUTHEAST ASIA AND THE PACIFIC)**

from the

**NAVAL POSTGRADUATE SCHOOL
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ABSTRACT

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LIST OF ACRONYMS AND ABBREVIATIONS

CCP	Communist Party of China
DRC	Development Research Center
FDI	foreign direct investment
FIE	foreign investment enterprises
FYP	five-year plan
GDP	gross domestic product
IMF	International Monetary Fund
MOF	Ministry of Finance
PBoC	Peoples Bank of China
PRC	Republic of China
RMB	Renminbi
SDR	special drawing right
SOE	state-owned enterprises
U.S.	United States
UK	United Kingdom
USD	U.S. dollar
WTO	World Trade Organization

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ACKNOWLEDGMENTS

I would like to start by thanking the faculty and staff of the National Security Department at the Naval Postgraduate School. Your commitment to students and dedication to excellence have made the last 18 months some of the most arduous yet fulfilling moments of my life. In particular, I would like to thank my thesis advisor, Dr. Robert Looney, for encouraging and reassuring me throughout this process. I would also like to thank my second reader, Dr. Michael Glosny, for challenging me to push harder for that extra level of detail. The lessons I take away from this institution will benefit me for the rest of my life.

Most importantly, I need to thank my beautiful wife, Veevee. Thank you for taking a leap of faith to come to California with me. I know you sacrificed everything you knew and were comfortable with to support me in my academic endeavors. The last 18 months have been difficult for you from time to time, but without your constant support, companionship, and love, I would not have been able to successfully complete this program.

Lastly, I need to thank my family. My parents, Chris and Lisa, have been the springboard from which every accomplishment in my life has been possible. You have imbued in me a love of learning and a desire to succeed. My siblings, Tricia, Graham, Andrew, and Kevin, have forced me to live life with a sense of humor and humility. It has been hard being away from you guys for so long. I look forward to coming home.

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I. INTRODUCTION

A. MAJOR RESEARCH QUESTION

Currency devaluation is an exchange rate policy whereby governments artificially lower the value of their currency to increase the competitiveness of their exports. Critics in the United States (U.S.) argue that the Republic of China (PRC) utilizes this policy to gain an unfair trade advantage. With over a billion citizens, China, for decades, has pegged the Renminbi (RMB) to the U.S. dollar (USD) at an artificially low rate. A low valued currency relative to competing nations makes exports less expensive and imports more expensive, thereby providing advantages to specific sectors in the country with the lower valued currency. China has pursued this policy to develop an industrial capacity and to maintain low-end manufacturing jobs for its numerous citizens. Although a devalued currency makes exports cheaper, it also makes imports more expensive, which reduces citizen's consumption power. Whether or not this tradeoff has a net gain or loss is immensely relevant to policy makers in both China and the United States.

As one of America's largest trading partners, China has the ability to impact the U.S. economy through its exchange rate polices. Actions that benefit certain sectors in its domestic economy can subsequently harm American competitors. Conversely, Chinese sectors harmed by these same policies may provide an advantage to certain U.S. sectors. General consensus in the United States appears to be against Beijing's current policies, but could a currency adjustment actually be harmful to the American economy? Any discussion on China's policies should also analyze the corresponding effects to sectors in the American economy.

In its 12th five-year plan (FYP), the Communist Party of China (CCP) announced a plan to rebalance its economy from low-end manufacturing and investment to high-end manufacturing and services through domestic consumption. How will its current exchange rate policy affect this goal? This research seeks to examine the winners and losers of currency devaluation within the Chinese economy, as well as determine

implications for the American economy. More specifically, how does this policy affect China's goal of greater consumer driven growth, and how will a policy shift affect the U.S. economy?

B. IMPORTANCE

Currency manipulation is an issue that garners much international and domestic tension. China's RMB value was a major focus of the 2012 U.S. presidential election. Business leaders and labor union officials, who are normally at odds, have been united against Beijing's exchange rate policies. Legislators have put forth numerous bills aimed at curbing the currency misalignment.[1] Scholars claim that an undervalued RMB is responsible for millions of lost U.S. jobs and is a driving factor of the enormous trade deficit with China.[2] Trade officials from the United States and European Union have called for World Trade Organization (WTO) and the International Monetary Fund (IMF) action against China.[3] Exchange rate policies affect, to varying degrees, all actors of the U.S. economy; therefore, it is of great importance to understand the implications of such policies.

In China, the CCP realizes that economic progress is essential to political stability. At the heart of that stability is employment, and a rise in the value of the RMB could force export businesses to close, thereby increasing job loss. China's economy relies on the profit of exports to drive investments in infrastructure and development. Leadership in Beijing, however, recognizes that China must rebalance its economy to allow for consumption driven growth in services and high-end manufacturing if it is to

[1] Wayne Morrison and Marc Labonte, *China's Currency: An Analysis of the Economic Issues*, CRS Report RS21625 (Washington, DC: Library of Congress, Congressional Research Service, 2010).

[2] Robert Scott, "The China Toll: Growing U.S. Trade Deficit with China Cost More Than 2.7 million Jobs Between 2001 and 2011, With Job Losses in Every State," *Economic Policy Institute*, Briefing Paper #345, 2012; Paul Krugman, "Chinese New Year," *The New York Times*, 2010.

[3] Kong Qingjiang, "China's Currency Devaluation and WTO Issues," *China International Journal* (2012): 110–118.

continue its rapid ascent.[4] An understanding of how the current exchange rate policy impacts the different sectors of the economy is vital to continued growth.

It appears to be overwhelmingly assumed that devaluation benefits the devaluing country. Despite enormous tension, many countries are moving toward increased devaluation. In recent years, the central banks of Japan and the United States have engaged in policies of currency devaluation. Although much attention is paid to the harmful effects of other countries' devaluation, little attention is given to possible negative effects to the devaluing country. This research is important because it explores the negative effects of devaluation on China's domestic economy. It seeks to identify sectors of the economy that may be harmed by devaluation, and to highlight many of the internal contradictions China faces in achieving its FYP. Mainly, is its current exchange rate policy aimed at helping exporters, and thus, undermining consumption driven growth? Also, if the RMB is revalued, could it actually harm the United States?

C. PROBLEMS AND HYPOTHESES

The most important problem raised by the major research question is whether or not policies aimed at economic expansion actually achieve this end. Competitive devaluation creates artificial winners and losers. Much focus has been given to the artificial winners as evidenced by the number of countries that are devaluing their currency. This research focuses on the impact devaluation has on the artificial losers and how it affects the overall economy. More specifically, what sectors of the Chinese economy are hurt by devaluation and how does that affect the CCP's intention to rebalance the country toward consumption driven growth.

Also, political pressure in the United States appears to be against China's current policies. A shift away from the status quo, however, will necessarily harm the sectors of the U.S. economy that have artificially benefited from a devalued RMB. This research

[4] Il Houng Lee, Murtaza Syed, and Liu Xueyan, "China's Path to Consumer-Based Growth: Reorienting Investment and Enhancing Efficiency," *International Monetary Fund*, 2013, 3–22; British Chamber of Commerce in China, China-Britain Business Council, "12th Five Year Plan," (n.d.), http://www.britishchamber.cn/content/chinas-twelfth-five-year-plan-2011-2015-full-english-version.

seeks to identify the sectors of the U.S. economy that will be harmed by an appreciated RMB, as well as determine the extent a policy shift will benefit or harm the U.S. economy overall.

The preliminary conclusion is that China's policy of currency devaluation, although successful in developing low-end manufacturing capacity, has reached a point of diminishing returns. Due to higher priced imports and reduced consumer purchasing power, currency manipulation is harming China's plans to rebalance its economy. It is also expected that a rise in the RMB will not create more jobs in the United States because gains in the low-end manufacturing sector will be offset by losses in high-end manufacturing and service sectors. Also, many low-end manufacturing jobs lost to China will shift elsewhere in Asia as opposed to returning back to the United States. Lastly, it is expected that an appreciation of the RMB will result in lower demand for U.S. debt overtime; thereby, creating higher interest rates on U.S. treasuries that will exacerbate the U.S. debt problems.

D. LITERATURE REVIEW

1. Government Intervention, Exchange Rates, and Economic Theory

The role of government in exchange rate policies, and the economy in general, is a debate that dates back to Adam Smith in the 18th century. Smith argues against government intervention. He states that individuals acting in their own self-interest can best allocate the resources of a nation. Furthermore, a division of labor allows individuals to specialize in certain tasks, and thereby, increase productivity. The natural propensity of humans to truck, barter, and exchange allows individuals to obtain a mutual benefit from one another and that individuals pursuing their own self-interest most effectively promotes the good of society overall.[5]

In regard to regulation, Smith argues that no regulation can increase the total industry in a nation. It can only divert wealth in an artificial direction and no guarantee exists that a new direction is more beneficial to society than where it would have

[5] Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, ed. Naazneen Barma and Steven Vogel (New York: Routeledge, 2008), 27–40.

originally gone.[6] Smith lays the theoretical foundation for liberalism, which is the belief that countries should not actively intervene in the economy. This theory provides opposition to currency manipulation.

Contrasting Adam Smith's liberalism, Friedrich List provides an argument for mercantilism. List argues that Smith falsely conflates the individual economy with the national economy. Individuals acting in their own self-interest will maximize value, but will not necessarily develop future productive powers. He further explains that prosperity is not proportionate to the amount of wealth amassed, as Smith argued, but rather is proportionate to a nation's capacity to create more wealth. List's main vehicle for productive power was manufacturing. To achieve productive powers, List argues for government involvement. He viewed trade as a zero sum game in which nations that had already established an industrial base would maintain a comparative advantage. Therefore, a government is bound in the interest of the nation to impose duties on foreign manufactured goods. List provides the theoretical framework for government involvement in economic affairs. This argument would seem to validate currency manipulation; so long as it could be shown productive power was increased by such action.[7]

In regard to exchange rates specifically, Milton Friedman best articulates the liberal school of thought. He explains that artificial currency devaluation is a form of trade protectionism. Since a weaker currency makes exports cheaper, it acts as an indirect subsidy to exporters. Conversely, since imports are more expensive, currency devaluation acts as tariff on imports. Both subsidies and tariffs result in misallocation of resources away from comparative advantage, and therefore, create a net economic loss.[8]

Friedman also argues that a floating exchange rate and free trade of currency will in time equalize the balance of trade deficits. He explains that if the United States were to run a balance of trade deficit with another country then that country would need to buy

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[6] Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, 27–40.

[7] Friedrich List, *National Systems of Political Economy*, ed. Naazneen Barma and Steven Vogel (New York: Routledge, 2008), 61–72.

[8] Milton Friedman, *Capitalism and Freedom* (Chicago: University of Chicago Press, 1962), 71–74.

dollars. These dollars would then need to be converted into the domestic currency. Supply and demand of currencies acts the same as it does for commodities. As the supply of dollars increases, the demand decreases, and thereby, decreasing the value of the dollar. Conversely, the demand for the domestic currency would increase, thereby, increasing its price relative to the dollar. Ultimately, the currencies would equalize against each other and level out trade deficits over the long run.[9]

The mercantilist school of thought gained legitimacy through the success of the developmental state, which is best described by Chalmers Johnson. The developmental state has four main tenets. The first is the authoritarian-capitalist nexus, which describes a state as having the political might to enforce economic progress. It is also defined by politically shielded technical experts that drive the economy. The second tenet is industrial policy in which the state actively intervenes on behalf of private businesses. This intervention can come in the form of subsidies, tax breaks, import tariffs, and even competitive currency devaluation. The third characteristic is broad based education. High levels of government investment are used to ensure future human capital. Lastly, intervention is done via the price mechanisms. Unlike the communist plan ideological model that artificially sets prices, the developmental state does not try to fight the market, but rather governs the market.[10]

These four characteristics allowed the East Asian countries of Japan, Taiwan, and South Korea to develop at exponential rates for decades. This growth is largely attributed to state involvement or mercantilism. The success of this model appears to provide evidence, at least for developing states, that government involvement in price controls and competitive exchange rates may be economically beneficial as a monetary policy. It also provides a theoretical basis for the CCP to intervene in China's currency.

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[9] Friedman, *Capitalism and Freedom*, 61–68.

[10] Chalmers Johnson, *MITI and the Japanese Miracle* (Stanford: Stanford University Press, 1982), 305–324.

2. Exchange Rates in Practice

Whether or not currency devaluation is beneficial to modern economies is a subject of abundant literature and extensive studies, but with little consensus. Mohsen Bahmani-Oskooee and Ilir Miteza provide a survey of hundreds of case studies and dozens of experiments. The authors explain the existence of two schools of thought on devaluations. The first, expansionary devaluation, which was championed by the famous economist John Maynard Keynes, is derived from the mercantilist school of thought. Expansionists argue that a devalued currency will stimulate net exports. This stimulation of exports will create a multiplier effect that will increase aggregate demand, as well as domestic production and employment. For decades, expansionary devaluation was the accepted norm. Over time, however, skeptics noted the failure of currency devaluation to increase net output after devaluation. Also, many countries that devalued their currency suffered recessions. This inconsistency gave rise to a new school of thought, contractionary devaluation. This theory, derived from liberalism, argues that increases in aggregate demand from currency devaluation will be offset by reduced aggregate supply from more expensive imports. As a result, the overall effect will be a reduction in growth and the Gross Domestic Product (GDP).[11]

The authors break the aggregate research on this topic into four categories. The first is the "before-after" approach that examines a country's economy before and after devaluation. Numerous economists used this approach including Richard Cooper and Sebastian Edwards. The results were inconclusive as some economists found devaluation to be contractionary while others found it to be expansionary. The weakness of this approach is that it does not isolate a single variable. The results could be influenced by numerous exogenous factors. The second approach is the "control group approach," which compares before and after output performance of devaluing countries against a control group. This approach consisted of nearly half a dozen experiments from researchers including Donald J. Donavan and Stephan Kamen and looked at well over a hundred case studies. Although this approach is superior to the before-after approach, it

[11] Mohsen Bahmani-Oskooee and Ilir Miteza, "Are Devaluations Expansionary or Contractionary? A Survey Article," *Economic Issues* 8 (2003): 1–3.

still suffers from an adverse selection problem as the countries selected had bad economies to begin with. The third approach is the "macro-simulation" approach, which uses simulations from economic models. Nearly 20 models were surveyed including studies from Paul Krugman and Lance Taylor. The results from these models show a propensity toward the contractionary theory. These models, however, are built on hypothetical devaluations and artificial values. Slight changes in any of the subjective inputs could change the model. The final model is the "econometric approach," which uses regression analysis on important variables to reach a conclusion. This approach was used in nearly 20 studies, but suffers from many of the short falls of the macro-simulation approach and provides no conclusive results.[12]

Bahmani-Oskooee and Miteza provide the definitive summary of research on the effects of currency devaluation. Their summary conclusions provide relevant information to the research questions. They noted that only a small number of studies concluded that devaluation was always expansionary, and many others found that expansion was only temporary. Additionally, contraction was not limited to the developing world. Currency devaluation in developed countries has led to expansion in some cases and contraction in others. Overall, the numerous studies provided conflicting evidence, which led the authors to conclude that the effects of currency devaluation are country specific.[13]

3. Exchange Rates and the United States

The impact of China's currency devaluation on the U.S. economy is another subject of contention. As one of America's largest trading partners, China's currency policies have an effect on the U.S. economy. Critics of China's exchange rate policy, including lawmakers on both sides of the political aisle, are concerned that it disadvantages U.S. firms, undermines U.S. security, and steals U.S. jobs.[14] This issue is

[12] Bahmani-Oskooee and Miteza, "Are Devaluations Expansionary or Contractionary? A Survey Article," 3–22.

[13] Ibid., 23–24.

[14] Gary Clyde Hufbauer and Claire Brunel, "The U.S. Congress and the Chinese Renminbi," in *Debating China's Currency Exchange Rate*, ed. Morris Goldstein and Nicholas Lardy (Peterson Institute for International Economics, April 2008), 219–232.

considered so important that the U.S. treasury provides a twice-yearly report on China's currency policies. Also, the congressional research service has examined these concerns in multiple reports.

To maintain a devalued RMB, the PRC must purchase large amounts of foreign reserves, specifically the U.S. dollar and U.S. treasuries. China is currently the largest foreign holder of U.S. debt. Many argue that this makes America dependent on China, and therefore, U.S. debt can be used for political and economic leverage against the United States. Others including Daniel Drezner and Arthur Kroeber argue that concerns over debt are overinflated because China is equally reliant on the United States. Since China holds so much debt, it would be harmed by a drastic price shock to the U.S. dollar. Also, as a percentage of overall debt, China only holds a small fraction. The majority owners of U.S. debt are Americans. Despite these arguments, many American lawmakers are concerned about the level of debt, and have advocated a stronger stance against China's RMB devaluations.[15]

The Economic Policy Institute and famed economist Paul Krugman argue that with less than full employment, the liberal argument against protectionism is invalid. He explains that the Chinese artificially peg their currency to the dollar, and thereby, undermines the market's ability to equalize currencies. The result is an artificial trade surplus for China and reduced demand for U.S. goods, which has resulted in the loss of more than 2.7 million U.S. jobs over the last decade.[16] Other economists including Derek Scissors and Ray C. Fair counter this argument by pointing out that RMB appreciation also leads to reduced imports for China, much of which comes from the United States. Furthermore, Fair explains that the increased price of Chinese imports will reduce the real wages of U.S. consumers, which will have a contractionary effect on U.S. demand and

[15] Wayne Morrison and Marc Labonte, *China's Holdings of U.S. Securities: Implications for the U.S. Economy*, CRS Report RL34314 (Washington, DC: Library of Congress, Congressional Research Service, 2013), 10; Arthur Kroeber, "The Renminbi: The Political Economy of a Currency," *Foreign Policy*, 2011, http://www.foreignpolicy.com/articles/2011/09/07 /the_renminbi_the_political_economy_of_a_currency; Daniel Drezner, "Bad Debts: Assessing China's Financial Influence in Great Power Politics," *International Security* 34, no. 2 (Fall 2009): 10.

[16] Krugman, "Chinese New Year"; Scott, "The China Toll: Growing U.S. Trade Deficit with China Cost More Than 2.7 Million Jobs Between 2001 and 2011, With Job Losses in Every State."

output. In other words, gains in employment from an appreciated RMB would be offset due to lower consumption from higher domestic prices. To support his claim, Fair provides a macro-economic model, similar to the ones examined by Bahmani-Oskooee and Miteza.[17] This evidence provides more legitimacy to Fair's argument, but it is important to note that experts within the United States disagree over the effect of China's monetary policies.

4. Exchange Rates and China

The impact of currency devaluation on the Chinese economy is also a subject of much study. Nicholas Lardy, of the Peterson Institute, argues that the policies that have driven China's growth in the past will not be as effective in the future.[18] In the past, China's economy has been largely driven by government investment. The income for that investment has come largely from exports. Lardy notes, and the CCP acknowledges in their 12th FYP, that this strategy is not sustainable. Although China weathered the 2008 financial crisis relatively well, its GDP growth has slowed over the past seven quarters. For continued growth in the future, China will need to rebalance from an export driven economy and government investment to a consumption driven economy. Lardy argues that the exchange rate policy needs to be reformed to do so. Additionally, Lardy broadly identifies some of the winners and losers of China's exchange rate policy. Most importantly, China's consumers lose because import prices are artificially high, which makes the price of consumer goods higher and reduces real wages. To have consumption driven growth, Beijing will need to reform its exchange rate policy and empower consumers.[19] Lardy's book provides a foundation on which to further explore the impact of devaluation on specific groups in China, and necessary exchange rate policy reform is needed to rebalance their economy.

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[17] Ray C. Fair, "Estimated Macroeconomic Effects of a Chinese Yuan Appreciation," *Cowles Foundation for Research in Economics Yale University*, 2010, 2; Derek Scissors, "Deadlines and Delays: Chinese Revolution Will Still Not Bring American Jobs," *Heritage Foundation*, no. 2855 (2012).

[18] Nicholas Lardy, *Sustaining China's Economic Growth After the Global Financial Crisis* (Washington, DC: The Peterson Institute, 2012), 2.

[19] Ibid., 56.

The literature pertaining to currency devaluation falls into two main schools of thought. The first is liberalism, which argues that artificial devaluation is ineffective because it merely redistributes gains as opposed to increasing net gains. The second is mercantilism, which argues that devaluation is beneficial because it can increase aggregate exports, which would create a multiplier effect, and therefore, growth. Additionally, devaluation could allow a developing country to establish industrial capacity. Extensive research on this subject has proven inconclusive. To determine whether devaluation is beneficial or not, each country must be considered on a case-by-case basis. This research seeks to add to the existing literature by examining China specifically. Many sources have identified winners and losers of devaluation in a broad sense, but further research must be done to identify specific groups, businesses, and industries helped and harmed by devaluation and how they would be affected by revaluation.

Current literature on exchange rate policy focuses largely on the national effects of changing values of RMB. Many of the aforementioned authors mention sectors affected in general terms, but research on the specific sectors that will be harmed by changes to exchange rates is lacking. This research intends to add to the field of knowledge by identifying many of the specific sectors affected by China's exchange rate policies, and how these sectors may benefit from a more flexible exchange rate.

E. METHODS AND SOURCES

The primary methods of this research are economic analysis and comparative study, but also include a small amount of historical study. Aside from the references discussed in the literature, this study also analyzes primary sources from the Congressional Budget Office, Congressional Research Service, Bureau of Labor Statistics, National Bureau of Statistics of China, China Investment Bureau Annual Reports, as well as the 53 sectors of the U.S. economy and the Chinese equivalent. As per the literature review, no conclusive proof was found that currency devaluation is expansionary or contractionary, but rather, varies case by case. This study seeks to identify key winners and losers of an artificially devalued RMB in both the United States

and China. Next, China's economy is evaluated and contrasted with that of the United States to determine whether or not devaluation is preventing rebalancing. Specifically, high import sectors in the Chinese economy that may benefit from a RMB revaluation, as well as competing sectors in the United States, are identified. Lastly, America's debt is studied to determine how a more valuable RMB may affect demand for U.S. treasuries.

F. THESIS OVERVIEW

This thesis argues that China's current exchange rate policy is an impediment to consumption driven growth in China. Conversely, it is argued that outcries against the PRC's exchange rate policy in the United States is over exaggerated, and that an appreciation of the RMB will not necessarily benefit the U.S. economy, but rather may have negative consequences. To prove this argument, it is necessary to understand the nature of China's economic growth, examine the role of exchange rate policies in this growth, identify sectors harmed by the current policy, and explain how those hurt by the current policy are needed for consumption driven growth. For the United States, a similar process is used to explain how losers of China's exchange rate policy will not necessarily win by an appreciated RMB due to the inelasticity of China's exchange rate, and the existence of other low cost competitors in the international community.

The nature of the international monetary arrangement, the history of China's exchange rate, and the process through which it maintain its peg is explained in Chapter II. Chapter III explains imbalances within the Chinese economy in the context of its investment driven growth model. Additionally, an examination of the current exchange rate policy follow to show how consumers, who are necessary for consumption driven growth, have been harmed by current policies. Chapter IV examines how China's exchange rate policy acts as an impediment to the PRC's goals of rebalancing to consumption driven growth.

II. CHINA'S EXCHANGE RATE POLICY

Chapter II provides background on important factors affecting China's exchange rate policy, as well as an overview of its investment driven economic model. China's exchange rate has changed considerably over the decades. The international monetary system, or lack thereof, has allowed the Peoples Bank of China (PBoC) to fix the RMB to a basket of currencies below market levels. This fixed system has allowed for relative stability as the RMB adjusts to market pressures. Despite this stability, China's policies have undermined the purchasing power of its citizens, as well as accumulated unhealthy levels of foreign reserve. Its undervalued currency has allowed the Chinese economy to grow dramatically over the last several decades. China is the world leader in manufacturing and exports due largely to state-led investments that have benefited from an undervalued currency. Growth from the investment-led model; however, is beginning to slow, and China will need to adjust to a more consumption-led model in the future for continued growth.

A. GLOBAL MONETARY ARRANGEMENT

To understand the implications of China's exchange rate policy, it is first necessary to understand exchange rates and how they fit into the global monetary structure. The global structure has evolved greatly over the last century and a half. Between 1870 and 1914, the major economies of the world pegged their currencies to gold. This arrangement worked well due to the relative tranquility of the pre-WWI era. However, the gold standard did not provide governments with flexibility in response to global shocks, such as world wars, commodities shocks, or the great depression. The interwar era made it clear that a new system was needed. In 1944, monetary leaders from developed countries around the world, including John Maynard Keynes, met at Bretton Woods, New Hampshire to develop a new international structure. The main characteristic of the new Bretton Woods system was an adjustable peg. Nations pegged their currency to the U.S. dollar, which was to be convertible to gold. To monitor currency stability and lend money to troubled nations, the IMF and World Bank were created. The Bretton

Woods system was successful for over 20 years; however, aspects of this system including one way speculation and an overly strained dollar caused the United States to abandon convertibility to gold in 1971, and then abandoned the gold standard completely in 1973. Since then, the system that emerged can best be described as a non-system with no overarching guiding principle. As a result, countries are free to choose between a floating or fixed exchange rate policies. Many choose a managed float, whereby, they allow rate adjustment within a narrow band of fluctuation. The dollar still remains the predominant world currency. The merits of the current system are still a matter of debate. Floating exchange rates are more susceptible to large fluctuations and fixed exchange rates are difficult to maintain. It is within this non-system that China has managed its exchange rate policy.[20]

Before a discussion of the details of China's current policy, it is important to explain exchange rates in a bit more depth. An exchange rate is simply the price of one nation's currency relative to another nation's currency. For example, it currently takes about six RMB to equal one U.S. dollar, so the exchange rate in terms of dollars is 6.12. This rate can also be expressed in terms of RMB as .16 dollars equals one RMB. Governments can manage this policy either through fixed or floating exchange rates. A floating exchange rate leaves the price of currency up to the market. Supply and demand are the main components of price. In a fixed exchange rate, governments peg their currency to another currency. The U.S. dollar is the most common peg; however, many nations including China have pegged their currency to a basket of currencies also referred to as a special drawing right (SDR). Often times, countries will choose to appreciate or depreciate their currency relative to the peg overtime. This situation is referred to as a crawling or managed peg.

Exchange rates are important to international trade because they allow trade in different currencies and they affect the relative prices of goods and services between countries. Imagine a U.S. importer trying to buy Chinese products from an exporter. The exporter will expect payment in RMB; however, the importer only has U.S. dollars. For

[20] Tomas A. Pugel, *International Economics* (New York: McGraw-Hill/Irwin, 2009), 490–500.

the trade to happen, the importer will need to convert his dollars to RMB, which is done through the foreign exchange market. These markets are massive. In 2007, an estimated 3.2 trillion trades were made per day.[21] The foreign exchange market is also multilayered. At the most basic level, the importer will be able to exchange currency through an international bank at the current exchange rate. At a higher level, the amount of foreign currency that banks have to transfer is based on a nation's central banks. Governments can intervene at this level to maintain a fixed exchange rate. An exchange rate pegged artificially low will reduce the prices of its goods relative to a higher valued currency, which benefits exporters and import-competing businesses. Conversely, an artificially low currency will harm importers and decrease the purchasing power of consumers.[22]

Monetary authorities can take various steps to intervene in the foreign exchange market and defend a fixed exchange rate. The first and most prevalent means is by purchasing foreign currency in exchange for domestic currency. This process reduces the supply of foreign currencies and increases the supply of domestic currencies in the exchange, thereby, placing downward pressure on the cost of domestic currencies. Secondly, monetary authorities can impose exchange controls, which are restrictions to who can and cannot access and convert domestic currency. Thirdly, would be to adjust domestic interest rates to influence capital flow. Lower interest rates would increase spending and investments thereby lowering capital held in banks. This process increases supply and lowers the exchange price. Lastly, a country can adjust its monetary and fiscal policies to increase or decrease demand for international capital flows.[23] An example would be the U.S. Federal Reserve policy of quantitative easing. This policy increases the supply of money, and thereby, decreases the price of dollars.

The implications of defending an exchange rate can vary greatly depending on the length of intervention. Countries with a fixed exchange rate normally allow their currency to adjust up or down within a range of the fixed currency, i.e., 3% up or down.

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[21] Pugel, *International Economics*, 403.

[22] Ibid., 473.

[23] Ibid., 478.

If macroeconomic factors force the currency above or below this band, the central bank can intervene by adjusting the domestic supply. This process can provide stability for a nation's currency, and therefore, benefit economic growth. As long as the disequilibrium created is temporary, countries can inflate and deflate indefinitely. If disequilibrium is non-temporary, and macroeconomic forces are continually driving domestic currency to appreciate or depreciate, then government intervention over a period of time can have significant negative implications. For instance, Thailand attempted to maintain an overvalued baht, but was forced to sell foreign reserves to do so. Unfortunately, it acted against market forces too long, which resulted in a depletion of its foreign reserves. Unable to maintain the peg, the baht was revalued by the market nearly overnight, which imploded its economy. Conversely, a country like China that wants to maintain a devalued currency will be required to purchase foreign reserves continuously to fight appreciation. This problem is twofold. Firstly, by purchasing the foreign currency, the supply is reduced so the cost to purchase will increase overtime. Secondly, as market forces push up the value of the domestic currency, the value of the foreign reserves decreases. It is a negative investment since the losses are increased the longer the process occurs.[24]

B. DEFENDING CHINA'S EXCHANGE RATE POLICY

For decades, China has actively intervened in the exchange rate market to keep the value of the RMB artificially deflated. Prior to 1994, it maintained a dual rate system whereby the importers and exporters developed a somewhat market-based exchange rate of RMB8.70 to USD in a "swap market." While the Chinese government maintained tight control of its currency, privileged importers were allowed RMB5.77 at an official government rate. In 1994, the Central Bank of China unified the two rates at 8.70, which was considered to be undervalued, but was allowed to appreciate gradually to RMB8.28 by 1997 where it remained until 2005. During this time, China utilized a fixed exchange rate pegged to the U.S. dollar.[25] In July 2005, Beijing announced that it would abandon a

[24] Pugel, *International Economics*, 483–486.

[25] Lardy, *Sustaining China's Economic Growth After the Global Financial*, 103.

peg to the dollar in exchange for a basket of currencies called a SDR. It is important to note that China did not release the proportions of that SDR, and based on stability between the dollar and the RMB between 2008 and 2010, many experts have claimed that China still pegs to the U.S. dollar or at least predominantly to the U.S. dollar.[26] This new system referred to as a "managed float" allows the RMB to appreciate in the direction of the market, but still gave China the ability to manage the pace of appreciation. Between July 2005 and July 2008, the RMB appreciated from 8.28 to 6.83, an appreciation of nearly 2%. In the wake of the 2008 financial crisis, however, the Central Bank of China intervened to halt appreciation to support exporters who had been harmed by reduced demand. By early 2010, Beijing once again allowed the RMB to appreciate gradually up to its current level of RMB6.12 as of September 2013.[27]

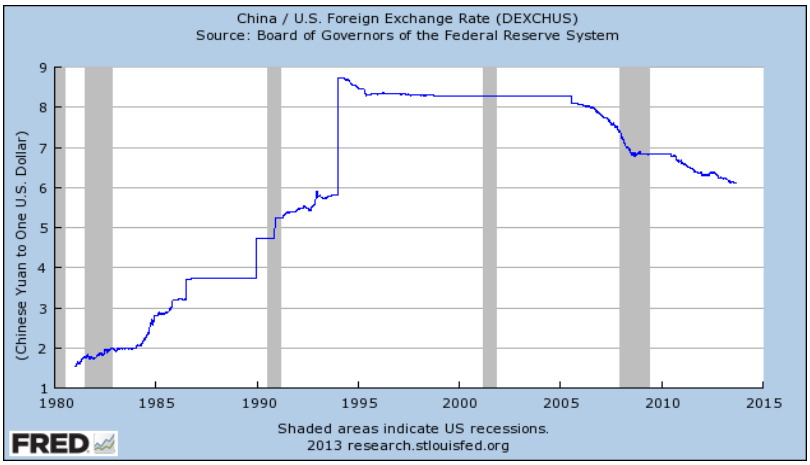

Figure 1. China/U.S. Exchange Rate Since 1980[28]

China has developed a complicated process of intervention to defend its exchange rate. Beginning in 2003, China's central bank has intervened extensively in the foreign exchange market by purchasing foreign currencies, mainly U.S. dollars, with newly

[26] Morrison and Labonte, *China's Currency: An Analysis of the Economic Issues*, 2.

[27] Pugel, *International Economics*, 487; Economic Research, Federal Reserve Bank of St. Louis, "China and U.S. Foreign Exchange Rate, Board of Governors of the Federal Reserve System," modified September 18, 2013, www.research.stlouisfed.org.

[28] Economic Research, Federal Reserve Bank of St. Louis, "China and U.S. Foreign Exchange Rate, Board of Governors of the Federal Reserve System."

minted RMB. This process reduces the supply of U.S. dollars and increases the supply of RMB, and thereby, devalues the RMB relative to the USD. Without further action by the Chinese central bank, this process would lead to high levels of inflation in China due to the increased supply of RMB. In response, the Chinese have implemented a process of sterilization to reduce available domestic supply.

The process of sterilization involves two steps. In the first step, the Central Bank of China issues interest-bearing bills to state-controlled commercial banks in exchange for RMB. These bills generate very low interest rates, approximately 1.7% for three-month bills and 2.1% for one-year bills to keep the cost of sterilization low.[29] Normally, this action would be harmful to banks due to the low yields. To compensate banks for the low yields, the central bank administratively lowers the deposit rate banks lend to savers. In effect, savers in China actually receive a negative return in their bank accounts when factoring in inflation. This process allows China to reduce its money supply and allows banks to remain profitable, but forces savers to lose money. The second step of the process is an increased required reserve level. The reserve level is the amount of money banks are required to maintain on hand. The reserve requirement rose from 6% to 18.5% between 2003 and 2010. By increasing the amount of money held in banks, the central bank simultaneously reduces the domestic supply, and therefore, the appreciation of the RMB. This process allows China to purchase foreign reserves without creating inflation in the domestic currency.

Although China is able to intervene in the foreign exchange market without causing domestic inflation, several other negative implications of their current policy result. One such implication is the opportunity cost of the money used to sterilize foreign currency purchases. Although commercial banks receive a small return from the central bank bills, the money used to purchase these bills could have earned higher rates elsewhere. At the end of 2010, commercial banks held nearly RMB4 trillion central bank bills earning around 2%. The average alternative investment for commercial banks, however, was over 6%. This 4% percent spread constitutes an implicit tax equivalent to

[29] Lardy, *Sustaining China's Economic Growth After the Global Financial Crisis*, 97.

RMB170 billion or .4% of GDP. Similarly, the reserve level mandated by the central bank, earns an even smaller return and constitutes a larger sum resulting in an implicit tax of nearly RMB450 billion or 1% of GDP. As mentioned previously, much of this loss is then pushed on to savers through negative deposit rates.

Another negative implication is the ever-growing sum of foreign currency reserves. As mentioned in the previous section, accumulating foreign exchange reserves to maintain a peg on a non-temporary basis will lead to a loss when the domestic currency is revalued in line with market forces, which is a concern for China because it holds $3.5 trillion as of June 2013. To offset this loss and better utilize their foreign exchange reserves, the PBoC engages in the purchase of investments that include U.S. treasuries, U.S. agency debt, U.S. corporate debt, and U.S. equities. As of June 2012, these purchases totaled $1.6 trillion.[30] As long as the interest on these investments surpasses the appreciation of the RMB, the PBoC avoids a loss on its current holdings. Despite this assurance, China becomes increasingly vulnerable to global shocks that could cause defaults on these investments. Also, foreign nations, particularly the United States and the European Union, see the accumulation of foreign exchange as a manifestation of unfair trade practices. This concern has led many U.S. policy makers to advocate legislation that would impose a countervailing tariff on Chinese imports. Although China has been able to offset a loss in its holdings of foreign reserves due to investments, it is clear that this process is becoming increasingly difficult to maintain.[31]

[30] Morrison and Marc Labonte, *China's Holdings of U.S. Securities: Implications for the U.S. Economy*, 1–2.

[31] Morrison and Labonte, *China's Currency: An Analysis of the Economic Issues*, 9.

Figure 2. China's Holdings of U.S. Dollars[32] [33]

This section highlights how China maintains its exchange rate, but also shows that exchange rate policy does not exist in a vacuum. Other policies including capital controls, financial repression, and foreign reserve acquisitions are all intrinsically linked to maintaining a devalued currency. These policies reduce the value of the RMB by controlling the international supply but also simultaneously prevent domestic inflation. This combination has allowed the PRC to borrow cheaply and has greatly contributed to China's investment-driven growth model.

C. CHINA'S INVESTMENT-DRIVEN ECONOMY

China's economic growth since reforms in 1979 has been nothing short of miraculous. GDP growth has averaged 10% a year and an estimated 500 million citizens have been lifted out of poverty. The reforms opened China's economy to market forces while maintaining an authoritarian regime with the CCP in control. This system of government directed capitalism is often described as socialism with Chinese characteristics. Its system is very similar to the developmental state model described by Chalmers Johnson. It differs, however, in that the Chinese have allowed much greater

[32] U.S. Department of the Treasury, *Foreign Portfolio Holdings of U.S. Securities* (Washington, DC: GPO, 2013), 8–37.

[33] Gwynn Guilford, "Slowly But Surely, China Is Shedding Its Treasury Holdings," October 2013, http://qz.com/138671/slowly-but-surely-china-is-shedding-its-treasury-holdings/.

amounts of foreign direct investment (FDI) than its East Asian counterparts and have allowed the state a stronger hand in investments.[34] The driving force behind China's growth is state directed investments in human and especially physical capital. These investments have developed an enormous manufacturing infrastructure, as well as attracted large amounts of FDI; however, recent growth has slowed and doubts have been raised as to whether the current system will be as successful going forward.

Economic growth is derived from physical capital, human capital, and total factor productivity, which manifest themselves in consumption, government investments, and net trade surplus. China's GDP growth is driven largely by government investments and trade surplus. Investments include infrastructure, development, real estate, manufacturing capacity, social housing, and subsidies to the nation's numerous state-owned enterprises (SOE). Additionally, much of the country's investments are delegated to local regions. These regions, in turn, invest in other projects like subways, airports, luxury condos, and five-star hotels for example. Nearly 50% of China's GDP growth can be attributed to investments.[35] For decades, these investments have generated revenue by eliminating overcapacity in high demand sectors, as well as providing more efficient labor allocation. The revenue from these investments has been allocated to other investments designed to stimulate growth and industrial capacity. Net exports are another contributing factor to economic growth. In 2010, China surpassed the United States to become the world's largest manufacturer on a gross value added basis, and in 2012, surpassed the United States as the world's largest trading economy. A combination of low wages, foreign investments, and competition-facilitating programs like subsidies, infrastructure improvement, and employee education, have allowed China to become the world's

[34] Yasheng Huang, *Capitalism with Chinese Characteristics* (New York: Cambridge University Press, 2008), 275–280; Wayne Morrison and Marc Labonte, *China's Economic Rise: History, Trends, Challenges, and Implications for the United States*, CRS Report RL33534 (Washington, DC: Library of Congress, Congressional Research Service, September 5, 2013), 5.

[35] Ashvin Ahajua and Malhar Nabar, "Investment-led Growth in China: Global Spillovers," *International Monetary Fund*, WP/12/267, 2012, 3.

factory, generating 18% annual export growth since 1990. Between 2001 and 2008, net exports combined with government investments, accounted for over 60% of China's GDP growth.[36]

Beginning in the early 1990s, FDI became another major driver of China's economic growth. In 2010, China registered 445,244 foreign investment enterprises (FIE), which employed 55.2 million workers. These enterprises have comprised a growing percentage of industrial output. In 1990, only 2.3% of output was a result of FIEs, but by 2010, that output was up to 27 percent. Also, these enterprises are responsible for 52.4% of exports and 49.6% of imports as of 2011. FDI is important to the Chinese economy because it creates revenue and employment. Just as importantly, FDI is responsible for massive amounts of innovation and total factor productivity. For decades, China has adapted technology and processes from foreign firms that will be necessary to drive growth in the future.[37]

Much of the growth in government investments and net exports has come at the expense of consumption. As mentioned above, China's exchange rate policy acts as a de facto tariff on imports, which results in higher consumer prices, and therefore, reduces purchasing power for consumers. Additionally, the financial suppression required to purchase foreign currency and sterilize domestic currency has resulted in extremely low interest rates on savings. This attack on savings further undermines consumer purchasing power. Between 1990 and 2012, China's GDP share of fixed investments rose from 25% to 45.4%; meanwhile, during that same period, private consumption fell from 48.8% of GDP to 36.3%. As a result, China has the lowest private consumption share of GDP than any other major economy.[38]

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[36] Morrison and Labonte, *China's Economic Rise: History, Trends, Challenges, and Implications for the United States*, 10–29.

[37] Ibid., 13; Fundsupermart.com, "China Economic Review: Growth and Currency Considerations," May 22, 2012, http://www.fundsupermart.co.in/main/research/article-China-Economic-Review--Growth-and-Currency-Considerations-1092.html.

[38] Morrison and Labonte, *China's Economic Rise: History, Trends, Challenges, and Implications for the United States*, 29.

This model of growth, however, is unlikely to be as successful going forward as it has been in the past. Continued growth requires revenue. Much of the low-hanging fruit has been picked in China. Infrastructure investments, such as land, resources, and most importantly demand, are constrained. Investments in a new airport will boost GDP by government spending, but revenue will only be generated if businesses and travelers actually utilize that airport. Government investment is most successful in the early stages as it is able easily to identify and satisfy economic demand. As time goes on however, these investments become increasingly scarce and lower-return investments are utilized.[39] Also, increasing wages will slow manufacturing exports. As marginal productivity of China's workforce increases, so will its wages. China's wage advantage is slowly diminishing. Between 2000 and 2012, real wages increased at an annual rate of 11%.[40] Competing countries like Mexico and Vietnam now have significantly lower wage rates compared to China. This trend will gradually erode China's beneficial export surplus.

[39] Michael Pettis, *The Great Rebalancing* (Princeton: Princeton University Press, 2013), 1–22.

[40] Morrison and Labonte, *China's Economic Rise: History, Trends, Challenges, and Implications for the United States*, 11.

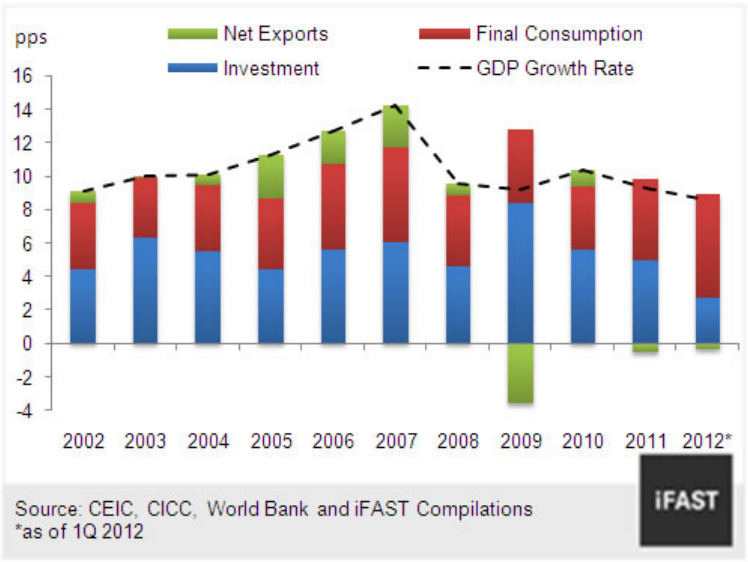

Figure 3. A Gradual Decrease in GDP Growth and Net Exports Since 2007[41]

For decades, China has pegged its currency to the U.S. dollar at an artificially low rate. This policy has protected exporters and import-competing businesses at the expense of consumers. This policy, however, has led to massive amounts of foreign reserves that will make China increasingly vulnerable to global shocks, as well as undermine national wealth once the RMB is allowed to float. History has shown that countries that fight the trend of the market in regard to their currency for too long end up facing economic disaster. Although China's investment-led growth model has been successful in the past, higher wages and lower return on government investments will eventually result in slower GDP growth.

[41] Fundsupermart.com, "China Economic Review: Growth and Currency Considerations."

III. ECONOMIC IMBALANCES

China's economic rise has been nothing short of miraculous. Utilizing strong state intervention in investments and currency, China has successfully developed a strong industrial capacity as advocated by Friedrich List. However, as Friedman of the liberalist perspective would argue, state intervention will lead to a misallocation of resources, which will result in imbalanced growth. This prediction appears to have been vindicated. In 2007, Premier Wen Jiabao described China's growth as "unsteady, imbalanced, uncoordinated, and unsustainable."[42] The distortions in China's economy have been affected by its exchange rate policy. These distortions have differing impacts on different sectors within the economy. Exporters, for example, receive an implicit subsidy, whereas importers are burdened with an implicit tariff. The artificial winners and losers of exchange rates imbalances are identified in this section. This chapter argues that China's exchange rate policy has contributed to economic imbalances that have benefitted exports and import-competing businesses at the expense of services, imports, consumers, and the financial sector. Also, since the economies of China and the United States are intertwined, the American economy will also experience a level of imbalance that creates artificial winners in consumption and high-end manufacturing, but harms exporters and import-competing businesses.

A. CHINA'S ECONOMIC IMBALANCES

The imbalances in China's economy can be seen in national expenditures and production. The expenditure approach looks at consumption (private and government), investment, and net exports. This approach shows that Chinese household consumption has been suppressed in favor of investment. Three common components are used to measure GDP: consumption, investment, and net exports of goods and services. Prior to 2003, consumption amounted to nearly four-fifths of GDP. After 2003, however, this trend began to decrease, and by 2010, consumption was only two-fifths of GDP. During this time, government consumption remained relatively stable, but household

[42] Lardy, *Sustaining China's Economic Growth After the Global Financial Crisis*, 44.

consumption bore the majority of the decline. A decrease in consumption as a percentage of GDP was offset by increases in investment and net exports. Investment in particular has increased from 36% of GDP in the decade following reform to more than 50% of GDP from 2003–2010, a level significantly higher than the East Asian countries at the height of their investments. Similarly, net exports increased from 2.4% in 2004 up to 8.8% of GDP in 2007. This number has since decreased in the wake of the global financial crisis, but still remains above 4%. The expenditure approach shows increases in investment and net exports, but a decrease in consumption.

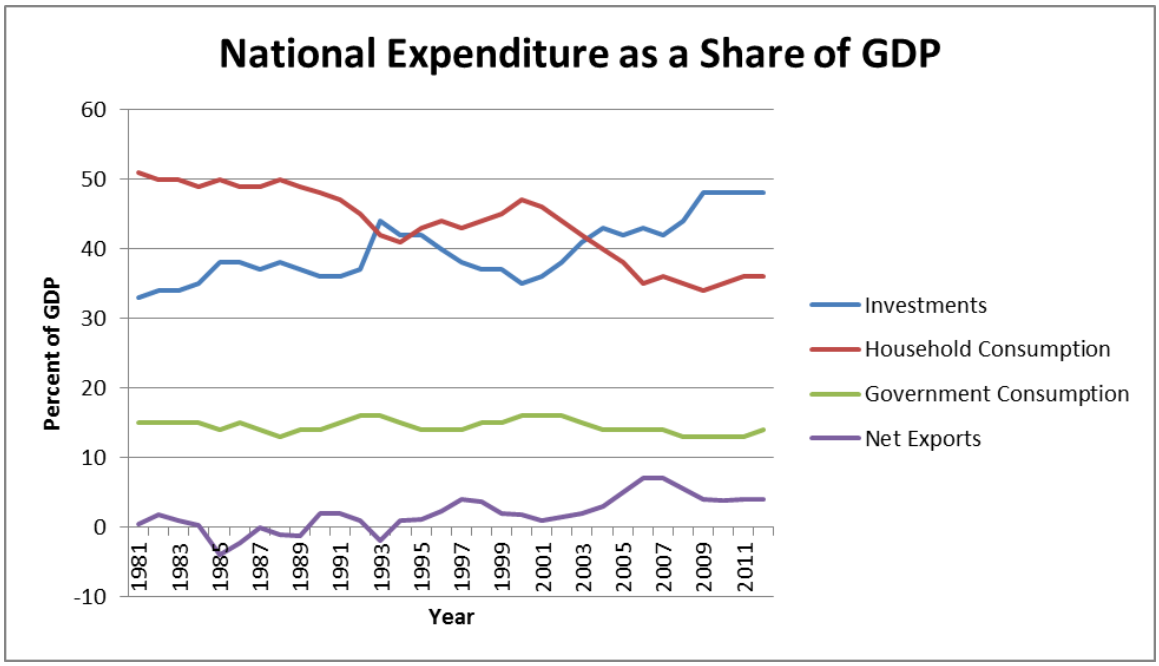

Figure 4. Visual Representation of Expenditure Approach[43]

These numbers are not surprising. China's exchange rate policy acts as a subsidy to exports and a tariff on imports, which makes investment cheaper and consumption more expensive. Consumption is important because it reflects the well-being of a nation's citizens. China's current growth from consumption averages around 34% whereas other more developed nations like the United States and the United Kingdom (UK) average

[43]The World Bank, *The World Bank Database*, last modified October 2013, http://www.worldbank.org/.

70% and 63%, respectively. Also, other developing countries, such as India, are driven by a consumption rate of around 56 percent.[44] The expenditure approach shows that China's exchange rate policy is harming consumption in favor of government investment.

Another measure of imbalance in the Chinese economy can be seen in the production structure: agriculture, industry, and services. Prior to reforms in 1978, agriculture accounted for nearly 30% of GDP. By 2010, it had dropped to less than 10%, which is typical for a country moving from low-income to middle-income. China's services and industry, however, have not developed along historical lines. A commonly observed pattern of economic development shows an increasing percentage of services reflect sustainable growth. Starting in the early 2000s, industry or tradable goods became an increasingly large share of GDP, and accounted for 47% in 2010. By contrast, services or nontradable goods stagnated, and only increased 1.5% between 2002 and 2010. Comparable states have services contributing 54% of GDP, whereas China's services only contribute 41.8%.[45]

[44] Lardy, *Sustaining China's Economic Growth After the Global Financial Crisis*, 45–52.

[45] Ibid., 52–55.

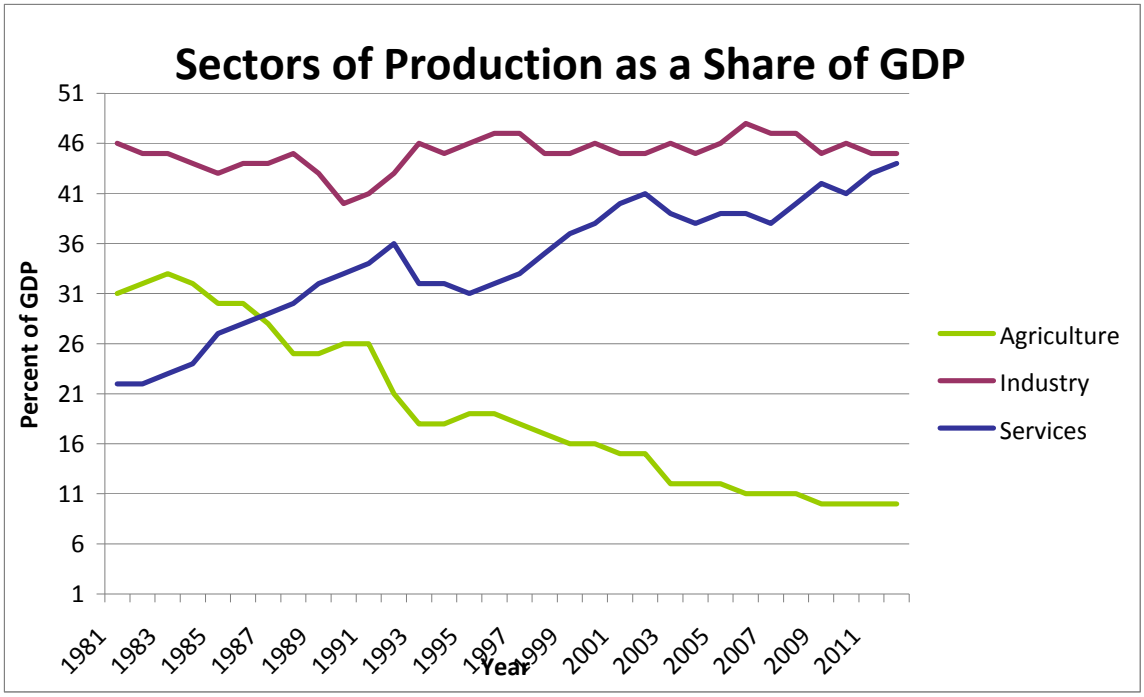

Figure 5. Data from the National Bureau of Statistics of China on Agriculture, Services, and Industry as a percentage of GDP from 1981–2012[46]

The distortion in China's production structure has been largely influenced by its exchange rate policy. Beginning in 2002, the RMB became increasingly devalued on a trade-weighted basis, which thus led to large trade imbalances. An undervalued currency benefits exporters because they receive a greater amount of domestic currency for each dollar's worth sold on the international markets. In other words, they have more RMB left over after expenses, and therefore, more profit. Conversely, those who wish to import foreign goods are forced to pay more in terms of domestic currency for a dollar's worth of goods. Imports are, therefore, more expensive, which allows import-competing businesses to raise their prices and increase profitability. It is important to note that devalued currency brings increased profitability to firms, both exporting and import-competing, that produce tradable goods as opposed to nontradable (services). This artificial incentive structure is responsible for China's imbalanced production structure in two ways. First, China's economy is predominantly market oriented. Investments will be

[46] Lardy, *Sustaining China's Economic Growth After the Global Financial Crisis*, 53.

allocated based off profitability. The increased profitability of tradable goods and the decreased profitability of nontradable goods have resulted in excessive investment flows into the industry sector and decreased flow into the service sector. Second, domestic factor prices are distorted. As mentioned in the previous section, much of China's growth is a result of government investment. This investment is disproportionately targeted toward tradable goods at subsidized prices. Additionally, the financial repression utilized to keep domestic interest rates low, undermines consumer purchasing power. The result is greater capital flows to industry and reduced capital flows to services. An appreciation of the RMB would allow for greater purchasing power for consumers, and therefore, greater demand for services.[47]

B. ECONOMIC IMBALANCE: WINNERS AND LOSERS

China's exchange rate policy has several implications on the national level to include financial repression and capital controls, but the impacts of this policy also have varying effects on different sectors within the Chinese economy. The economic imbalances created by China's exchange rate policy have created artificial winners and losers. Many of these groups have been briefly discussed. This section identifies in greater detail those sectors of society that benefit and those harmed by China's exchange rate policy.

1. Winners

As was seen by the production approach, exporters and the sectors that support them are major winners in the current structure. A devalued currency acts as a subsidy to exporters to allow exporters to receive a greater profit and increased market share against competitors in the United States using the higher valued dollar. The greater profitability also attracts greater levels of investment from the government and foreign direct investment. is the following table shows a list of China's top exporters. Nearly all top exporters are in manufacturing. Although China has a comparative advantage in manufacturing because it has a large supply of labor, this advantage is exacerbated by the

[47] Pettis, *The Great Rebalancing*, 58–68.

implicit subsidy of a devalued RMB. The large labor supply drives down wages, which lowers operating costs for manufacturers. This industry has also benefited from large amounts of government investment, as was mentioned in the last chapter. China's exchange rate policy along with low wages and government investment has unduly benefitted exporters and low-end manufacturing firms.

China's Top Exporters	Revenue in Dollars	Percent of Total Exports
1. Electronic equipment	$487,462,307,000	23.8%
2. Machinery	$376,002,094,000	18.3%
3. Knit or crochet clothing and accessories	$87,059,741,000	4.2%
4. Furniture, lighting , signs and prefabricated buildings	$77,904,042,000	3.8%
5. Optical, technical and medical apparatus	$72,816,793,000	3.6%
6. Non-knit and non-crochet clothing and accessories	$61,237,963,000	3.0%
7. Iron or steel articles	$56,202,059,000	2.7%
8. Plastics	$55,218,364,000	2.7%
9. Vehicles excluding trains and streetcars	$55,174,251,000	2.7%
10. Footwear	$46,817,564,000	2.3%

Table 1. Data from China's Top 10 Exports[48]

The manufacturing sector is not affected equally across the board however. High-end manufacturing in sectors like automobiles and electronics require large amounts of inputs from abroad, and therefore, have higher expenses because they are forced to pay a higher price for their imported components. Low-end manufacturing that produces smaller goods with fewer inputs from abroad fare better. A more flexible exchange rate policy would actually benefit high-end manufacturing by reducing the costs of their

[48] Daniel Workman, "China's Top Exports," *Worlds Top Exports*, June 12, 2013, http://www.worldstopexports.com/chinas-top-10-exports/1952.

inputs. Overall exports would likely decrease, but China's low wage advantage would keep it as a manufacturing powerhouse for the foreseeable future.

Other beneficiaries of the current imbalances are import-competing businesses, which sell products domestically and compete with foreign goods. RMB undervaluation acts as a subsidy to exporters, but also as a tariff on imports that drives up the relative price of foreign competing goods, which allows import-competing businesses to raise their prices. These inflated prices provide import-competing firms with a higher level of profits than they would have had if China allowed the RMB to appreciate to market levels. A more flexible exchange rate policy would increase competition between importers and domestic market suppliers. Import-competing businesses would lose profit, but other sectors of society would benefit.

2. Losers

Although several sectors benefit from China's economic imbalances, several losers include importers, consumers, services, and the financial sector. A devalued RMB places an implicit tariff on importers. Estimates for the level of RMB undervaluation vary significantly between 12% and 24%.[49] In other words, an equivalent tariff on U.S. imports to China results. Other major importers including South Korea, Japan, and Germany also face varying implicit tariffs. Top imports from these countries and the United States include vehicles, machines, engines, pumps, electronic equipment, medical equipment, and technical equipment. High-end manufacturing goods are not the only important imports. Raw materials including plastic, copper, rubber, wood pulp, iron, and steel are also very important. The implicit tariff on these raw materials will negatively affect consumers and manufacturers who rely on these inputs.[50]

[49] Morrison and Labonte, *China's Currency: An Analysis of the Economic Issues*, 12.

[50] Charles Wheelan, *Naked Economics: Undressing the Dismal Science* (New York: W. W. Norton & Company, 2010), 3–29.

China's Top U.S. imports	Cost in U.S. dollars
1. Oil seed	$15.7 billion
2. Machines, engines, pumps	$14.7 billion
3. Electronic equipment	$14.3 billion
4. Medical, technical equipment	$10.1 billion
5. Vehicles	$8.2 billion
6. Aircraft, spacecraft	$7.6 billion
7. Plastics	$6.3 billion
8. Wood pulp	$4.4 billion
9. Organic chemicals	$4.2 billion
10. Copper	$4.1 billion

Table 2. U.S. Exports to China Amounted to $128.6 Billion or 7.4% of Overall Chinese Imports in 2012[51]

Consumers and savers are also significantly harmed by China's economic imbalance that results in more expensive imports. Import-competing businesses are able to raise their prices artificially due to the implicit tariff created by the exchange rate policy. Thus, the domestic market faces less competition, while consumers face higher prices. A devalued RMB shifts income from consumers to exporters and import-competing businesses. Consumers are also hurt by the financial repression required to maintain a devalued currency. To keep inflation low, the PBOC has established low interest rates on savings. This process harms individual savers to allow the government to borrow at low rates. Capital controls imposed by the PRC to limit inflation prevents savers from seeking out higher yielding foreign investments, which further undermines the wealth of the average citizen. A more flexible exchange rate would eliminate the need to keep artificially low rates on savings and would increase the wealth of consumers.[52]

Another loser of current policies is China's service sector. Often referred to as the tertiary sector, services are exchanges of nontradable goods in expertise and time that increase productivity. Examples include telecommunications, tourism, hospitality,

[51] World's Richest Countries, "Top Ten Chinese Imports from the U.S. 2012," 2013, http://www.worldsrichestcountries.com/top_china_imports.html.

[52] Pettis, *The Great Rebalancing*, 32–33, 61–66.

financial services, government, healthcare, consulting, education, and information technology. Demand signals for services are far more dispersed and less apparent than manufacturing, and therefore, less attractive for government investing. A more flexible exchange rate would put more money in the hands of consumers. Millions of consumers acting in their own self-interest would better allocate resources to fill the various demand signals in the service sector. Although it is not possible calculate where millions of individuals would invest their extra money in the event of a more flexible exchange rate, it is safe to expect an increase in transportation, health and social services, and retail sales, which currently comprise 30% of service employment.[53]

Fastest Growing Services 2006–2009	Percentage Growth
Leasing and Business	29.0%
Real Estate	28.0%
ICT	18.3%
Healthcare and Welfare	8.2%
Hotels and Catering	6.9%
Scientific Research	6.1%
Education	4.3%
Finance	4.0%

Table 3. Service Sector Growth from the State of China Atlas (2009)[54]

Financial Institutions are another loser of China's exchange rate policy. State-controlled banks are able to make a profit on the difference between the rate offered on notes from the PBoC and the interest they must pay to depositors. While appearing to be beneficial, opportunity cost must also be considered. Banks only make around 2% on the notes from the PBoC. Money that is tied up with these low return investments could be used to fund higher yielding investments. Another aspect of financial loss comes from large holdings of U.S. currency and treasuries. These investments were purchased when the dollar was strong compared to the RMB, but as market forces overtime push the RMB to appreciate, a loss of value of China's holdings would result. Also, the money that has

[53] Pettis, *The Great Rebalancing*, 84–92; Robert Benewick and Stephanie Donald, *The State of China Atlas: Mapping The World's Fastest-Growing Economy* (Berkeley: University of California Press, 2009), 46–47; Wheelan, *Naked Economics: Undressing the Dismal Science*, 3–29.

[54] Benewick and Donald, *The State of China Atlas: Mapping The World's Fastest-Growing Economy*, 46–47.

been used to purchase U.S. dollars to keep the RMB undervalued has an opportunity cost. Had this money been left to the private sector in the form of reduced taxes, citizens would have had more money to drive consumption and services.[55]

C. IMPLICATIONS FOR THE UNITED STATES

The United States, as one of China's main trading partners, is also affected by China's exchange rate policies. How the United States has been affected is a matter of significant discourse and study.[56] Discussions on whether the United States should label China a currency manipulator and impose countervailing tariffs have been subject to intense public debate. Several political leaders from both sides of the political aisle have introduced legislation against China's policies. The issue was even brought up during the 2012 presidential campaign. The issue is deemed so important that the Treasury Department is required to submit an update on the PRC's policies semi-annually. Although the extent of China's exchange rate policy may still be unclear, it is possible to identify the sectors in the economy that are harmed and the sectors that are benefitted by a devalued RMB. Not surprisingly, the artificial winners and losers in America are the inverse to those in China.

Exports and companies that compete with Chinese imports are harmed by an undervalued RMB because it makes Chinese products less expensive to consumers and U.S. exports to China more expensive. Much of the harm of an undervalued RMB has come at the expense of the manufacturing sector. It has been estimated that several million jobs have been lost to China over the last decade.[57] Others argue that the number is much smaller, and that China's advantage is due mostly to its large labor force. Despite disagreements over magnitude, it is clear that a devalued RMB benefits domestic Chinese firms at the expense of U.S. firms, as evidenced by the large trade deficit. Also, firms that compete with Chinese imports are competing on an unfair playing field. Since Chinese

[55] Pettis, *The Great Rebalancing*, 58–61.

[56] The U.S. Treasury releases twice annual reports on the progress RMB appreciation. Also, the Congressional Research Service along with think tanks including the Peterson Institute have studied China's exchange rate policy in depth, and have released numerous reports and books.

[57] Scott, "The China Toll: Growing U.S. Trade Deficit with China Cost More Than 2.7 million Jobs Between 2001 and 2011, With Job Losses in Every State."

exports have an implicit subsidy, the Chinese are able to price their products lower than their U.S. competitors that must compete without a subsidy. As a result, prices are driven down and competing firms' profits, investments, and market share are reduced.[58]

Although exporters and import competing firms lose because of China's exchange rate policy, U.S. consumers and certain producers gain. Consumers gain because cheaper imports drive down the cost of everyday goods, which thereby, increases purchasing power. Import-competing firms are also forced to lower prices to compete. A devalued RMB subsidizes consumption and a higher standard of living in the United States. Higher levels of consumption benefit service industries. For this reason, 78% of the United States is employed in the service sector.[59] Also, certain producers that utilize raw materials and other inputs from China benefit from the lower cost of imports. Cheaper inputs decrease expenses, and therefore, increase profitability and investment. These gains are seen in high-end manufacturing that require large amounts of foreign inputs.

A devalued RMB clearly pressures a compositional shift in U.S. economic production and consumption, but what is the net effect on the U.S. economy? Studies conducted by Yale University and the Congressional Budget Office appear to show only slight downsides in the short run and likely no net gain or loss in the long run. The study finds that nearly a third of increased imports from China over the last decade came at the expense of other foreign importers as opposed to domestic importers. Also, claims of unemployment tied to China's policies have been exaggerated because no clear correlation exists between the current account deficit and unemployment. For example, in 2006, the deficit reached 6% of GDP; however, unemployment was 4.6%. In 2009, the deficit fell to 3% of GDP, but unemployment rose to 9.3%. The study estimated a 25% increase in the value of the RMB would harm imports from China and benefit exports to China, but that those benefits would be offset by lower Chinese economic growth and lower demand for U.S. goods. Additionally, the cost of Chinese goods in the United States would increase, which thereby, undermines the purchasing power of U.S.

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[58] Morrison and Labonte, *China's Currency: An Analysis of the Economic Issues*, 18–22.

[59] Benewick and Donald, *The State of China Atlas: Mapping The World's Fastest-Growing Economy* 46–47.

consumers. The net impact on the U.S. economy was estimated to be negative in the short run and resulted in a loss of nearly 60,000 U.S. jobs, which is less than 1% of U.S. employment.[60]

China's exchange rate policy also has several national implications regarding U.S. spending, debt, and interest rates. To maintain a devalued currency, the PBoC must purchase U.S. dollars and treasuries to reduce the international supply. As was explained earlier, this buying has resulted in massive holdings by China of U.S. dollars and securities, which currently stand at $1.6 trillion.[61] High demand for U.S. treasuries has allowed interest rates to remain low. This easy money has allowed the United States to run a large and consistent budget deficit. The most recent fiscal year ending in September 2013 showed a budget deficit of $680 billion, which is the lowest in four years. Washington has become largely dependent on deficit spending. Were China to move to a flexible exchange rate, it would no longer need to purchase high levels of U.S. debt, which would thereby, drive down supply and possibly the interest rates on treasury notes. It is important to note that the PRC currently only holds 8% of all outstanding treasuries. The majority, 69%, is held by Americans. A reduction in purchases overtime would likely benefit the U.S. economy, as a devalued dollar relative to the RMB would reduce the trade deficit. If, however, the PRC purchases of U.S. debt were to cease immediately, the United States would be forced to pay higher interest on new purchases of debt and would also likely be forced to cut domestic spending. This threat could be exacerbated by other countries subsequently reducing purchases of U.S. debt due to higher risk. A rapid revaluation of the RMB could harm the United States through higher interest rates, more expensive debt, and required spending cuts.[62]

Given the high risks associated with rapid revaluation and the limited downsides of gradual revaluation, calls by public officials for faster revaluation may be misplaced. Certain sectors of the American economy have been harmed by China's exchange rate

[60] Morrison and Labonte, *China's Currency: An Analysis of the Economic Issues*, 18–20; Ray C. Fair, "How Changes in the Value of Chinese Currency Affect U.S. Imports," *Congressional Budget Office*, 2010, www.cbo.gov.

[61] Morrison and Labonte, *China's Holdings of U.S. Securities: Implications for the U.S. Economy*,

[62] Kroeber, "The Renminbi: The Political Economy of a Currency."

policy including low-end manufacturing and import-competing firms, but other sectors including consumers and high-end manufacturing actually benefit. Despite alarmist calls by many in the media, and even certain politicians, studies show that a revaluation of the RMB would only slightly help the United States on a net basis. A rapid revaluation, which may be brought about by countervailing tariffs, would likely only harm the U.S. economy as higher interest rates could make current spending levels unaffordable. This cause and effect relationship perhaps has made the treasury department and senior U.S. officials reluctant to label China publicly a currency manipulator.[63] Gradual appreciation of the RMB is safer and more beneficial to the U.S. economy than a rapid revaluation.

[63] Treasury report released October 30, 2013 is critical of China's RMB value by describing it "significantly undervalued," but does not label the PRC a manipulator.

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IV. CHINA'S DOUBLE-EDGED SWORD

China's exchange rate policy is a double-edged sword because it has contributed to significant growth in the past, but will likely hinder future economic development because future progress will likely depend on innovation and consumer-driven growth. China has benefitted from emulating the roadmaps of other successful developers. It adapted what was effective and even leapfrogged ineffective or obsolete steps. This investment driven catch up process becomes less successful as China catches up technologically to other advanced nations because the nature of economic development changes. The returns from state-driven investments diminish as high yielding investments become less apparent. Rich industrialized nations like the United States are driven largely by innovation and consumption. Beijing recognizes the need to rebalance its economic growth. Documents released by the PRC including its 12th FYP, the World Bank collaborative *China 2030,* and the 18th Congress' 3rd Plenum Communiqué show a recognition in China for the need to reform current policies. Since 2004, the PRC has engaged in rebalancing to reform current policies, including exchange rate appreciation. The RMB has appreciated over 25% since 2005. Gradual appreciation will affect the artificial winners and losers of the current imbalanced economy. Despite progress toward appreciation, several challenges still exist, such as unemployment, politics, and timing. Until these problems are overcome, the PRC will face challenges to achieving its vision. China's exchange rate policy will be crucial in making such a transition. This section outlines how China's current policies are inhibiting the transition to a more market driven and innovative economy.

A. VISION OF THE FUTURE

Leaders in China envision an innovative, harmonious, and consumer driven future economy. Since 2004, the CCP has officially pursued economic rebalancing to achieve this vision. Their goals are outlined in official plans released every five years. In October 2010, the CCP central committee agreed on its guiding principles for the next five years. This agreement, known as the 12th FYP, is very broad and contains 60 chapters on topics

ranging from environmental improvement to steady urban development. Economic goals include enhancing the service industry, creating a positive consumption environment, promoting small and medium enterprises, and fostering strategic industries. To meet these goals, increased spending on social safety nets will be pursued to increase household disposable income. It also committed to invest heavily into the strategic emerging industries of biotechnology, new energy, high-end equipment manufacturing, energy conservation, and environmental protection, clean energy vehicles, new materials, health care, and next generation information technology. The government also intends to invest four trillion dollars to bring these industries to 20% of GDP by 2020.[64]

Another important document, *China 2030*, was published in early 2013. This report is based off research conducted by China's Ministry of Finance (MOF), The Development Research Center of the State Council (DRC), and the World Bank. This report proposes six strategic directions for China to develop into a modern, harmonious, and creative society by 2030. By "consolidating market foundations; promoting green development; ensuring equality of opportunity and social protection for all; strengthening public finances; and achieving mutually beneficial win-win relations with the rest of the world,"[65] the PRC hopes to move from a low-income country to a high-income country, which will require a transition from investment-driven growth to consumption-driven growth.

In November 2013, the CPC 18th Central Committee released a communiqué on reforms agreed upon during the Third Plenum. The most recent communiqué, which includes 60 areas of reform, reiterates many goals stated in the 12th FYP and *China 2030*. It also expounds upon the importance of perfecting the modern market system to ensure more efficient and fair allocation of resources. Also, non-public (service) sector growth is mentioned. Expanding the non-public sector will "promote innovation, expand employment, and increase tax revenues."[66] The Third Plenum Communiqué also

[64] British Chamber of Commerce in China, China-Britain Business Council, "12th Five Year Plan."

[65] The World Bank, *China 2030: Building a Modern, Harmonious, and Creative Society*, Washington, DC, 2013, 3.

[66] Open Source Center, Xinhua Domestic Services in Chinese, "CPC Central Committee Decision on Deepening Reforms," November 15, 2013, doi:CH02013111541499182, 5.

addresses capital controls, advocating the opening of the financial industry, marketizing interest rates, improving Treasury bond yields, and allowing private small and medium sized banks. The 3rd Plenum Communiqué is the most recent iteration of China's vision of a modern, balanced, innovative, market-based, and consumer driven economy.[67]

The scope of reforms needed to achieve the totality of China's goals goes well beyond exchange rate policy. Numerous other policies including reforming SOEs, enforcing intellectual property rights, expanding free trade zones, and bridging the urban-rural divide will also be necessary to achieve the PRC's vision. A devalued currency; however, is inhibiting the necessary steps to achieve the vision of a modern, innovative, consumer-driven economy.

B. A DOUBLE-EDGED SWORD

China's exchange rate policy is preventing consumer-driven growth and innovation by enabling financial repression, inhibiting efficient capital allocation, facilitating imbalanced growth, undermining consumption, and creating friction in the international community. Reforms toward a more flexible exchange rate will better allow China to achieve its goals outlined above.

Financial repression refers to the steps taken by the PBoC to maintain a devalued RMB while simultaneously preventing domestic inflation. This process, as was discussed in Chapter II, involves purchasing foreign reserves and selling domestic currency. At the same time, the central bank sterilizes the domestic currency by forcing government controlled banks to maintain high reserves and provide low interest on savings. This process has allowed the PRC to invest cheaply in SOEs and other industrial sectors. Financial repression resulting from a managed exchange rate policy essentially acts as a subsidy to industry, but is a tax on savers. Although this process has facilitated past growth by providing a subsidy to exports and allowing the government to invest cheaply, it has come at the expense of consumption. The wealth transfer from savers to industry was a major factor in China's imbalanced growth. A higher interest rate on savings will

[67] Open Source Center, Xinhua Domestic Services in Chinese, "CPC Central Committee Decision on Deepening Reforms," 1–25.

enhance the wealth of Chinese citizens. Halting financial repression by establishing a flexible exchange rate will allow China to move to consumption driven growth by increasing the wealth of the consumers.[68]

Another form of financial repression is seen in capital controls. Since market forces are pushing the RMB higher, foreign investors are incentivized to purchase RMB in expectation of a future appreciation. A rapid inflow of capital or "hot money"[69] could reduce the supply of RMB and cause uncontrollable inflation; therefore, the buying and selling of RMB is highly restricted. Although government-controlled sovereign wealth funds invest abroad, the average citizen has no such option. Incoming FDI has been a major driver of economic growth, but a lack of outward FDI prevents citizens from accessing greater wealth generating investments, such as higher yielding foreign bank accounts and stock exchanges. This lack of access further undermines consumer wealth and inhibits consumer driven growth.

Imbalanced growth is preventing development in services and strategic industries outlined in the 12th FYP, particularly in high-end equipment manufacturing, clean energy vehicles, and health care. China's exchange rate policy has benefitted exporters at the expense of importers and the service sector. High-end manufacturing requires numerous inputs, often times from overseas. The implicit tariff caused by an undervalued RMB makes these inputs more expensive, and therefore, the final product is more expensive. The same is true for clean energy vehicles. A more flexible exchange rate policy would also benefit these strategic sectors by increasing the purchasing power of consumers. Reduction in the implicit tariff on imports and an increase in savings would allow hundreds of millions of Chinese citizens to allocate capital better. Gains from greater purchasing power would likely enhance health care, which is an area of priority for most consumers. Direct government investment in these industries, as is currently planned, will certainly benefit growth, but sustained growth will require greater consumption power derived from a flexible exchange rate.

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[68] Low yield savings has also contributed to inflated housing prices as savers seek to find better investments for their savings.

[69] "Hot Money" was a major contributor to the 1997 Asian Financial Crisis.

Another goal stated in the *China 2030* was mutually beneficial relations with the rest of the world. China's exchange rate policy and associated foreign reserve buildup has become a source of international friction. It was argued in the previous chapter that China's holding of U.S. foreign reserves allows for low interest rates on treasuries and actually benefits certain sectors, such as high-end manufacturing and consumption. Even though the PRC's holding of U.S. debt may be beneficial, many are concerned and upset by a perceived unfair trading practice. The U.S. Department of the Treasury released its semi-annual report on foreign exchanges on October 30 of this year, and stated, "China has resumed large-scale purchases of foreign reserves this year, despite having accumulated 3.6 trillion in reserves, which are more than sufficient by any measure, is suggestive of actions that are impeding market determination and a currency that is significantly undervalued."[70] Many argue that China's holdings give them political and economic leverage over the United States. Others, however, counter that China has no leverage because it is equally reliant on U.S. debt, "when the United States owes China tens of billions, that is America's problem, but when it owes trillions, that is China's problem."[71] Whether or not this debt is an immediate threat is up for discussion, but few disagree that increasing debt overtime creates a strategic vulnerability and harms certain sectors of the U.S. economy. As a result, outcries for U.S. action against China have broad support. Both sides of the political spectrum have advocated legislation labeling China a currency manipulator. Divergent groups, such as labor unions and business owners, deride China's exchange rate policy. Whether or not these complaints have merit does not change the fact that China's current policy is creating international tension. A more flexible exchange rate would better allow China to achieve its goal of mutually beneficial international relations.

The most important aspect of moving to a consumer-driven growth model is a market-based allocation of resources, which was a goal of the Third Plenum Communiqué. The PRC's exchange rate policy undermines consumer wealth that is

[70] U.S. Department of the Treasury Office of International Affairs, *Report to Congress on International Economic and Exchange Rate Policies*, October 30, 2013.

[71] Drezner, "Bad Debts: Assessing China's Financial Influence in Great Power Politics," 10.

necessary for the efficient allocation of resources. Often times government spending is directed at creating short-term growth or maintaining employment as opposed to filling an actual economic demand. An example is the 2008 stimulus given to local governments that have funded unfilled malls and real estate buildings. Without a market demand, or customers, these projects will not generate revenue. Government spending will then be required to maintain these projects and businesses. Such an example of poor allocation of resources is China's SOEs in which an estimated one in four is losing money.[72] Overtime, this process moves money from productive sectors of society to unproductive sectors of society. This movement results in unsustainable growth and increased debt. Consumption has lagged the combination of government investment and trade surplus in China's economic growth, and policies directed at stimulating investment are harming consumption. As time goes on, government investments will become less profitable and exporters will find greater competition from lower-wage competition. A domestic market is needed to generate demand signals. Greater wealth in the hands of millions of consumers will more appropriately allocate the nation's resources and drive future growth and innovation.[73]

A flexible exchange will contribute to the PRC's goals of enhancing services, growing small and medium enterprises, and fostering innovation. Much of the low hanging fruit of high-yielding investments has been picked in China. Future growth will require investment in more dispersed opportunities. Services have not received the attention from government investment in the past because they are not as visible and the gains are often times dispersed. To fund service opportunities, capital must also be dispersed. Hundreds of millions of Chinese citizens with greater purchasing power will better allocate investment and resources toward the services necessary to grow the economy. More dispersed wealth will also provide greater investment opportunities to small and medium enterprises. Additionally, greater consumer wealth will provide more customers to these firms that otherwise would not have the money. Lastly, more dispersed capital will also allow for greater specialization. As economic supply catches

[72] Pettis, *The Great Rebalancing*, 1–28.

[73] Wheelan, *Naked Economics: Undressing the Dismal Science*, 3–29.

up with economic demand, small and medium enterprises will be able to fill new markets niches and specialize, which will drive innovation. Poor capital allocation harms innovation, services, and small enterprises. A market priced RMB would help China achieve its goals by facilitating market-based allocation resources.

C. GRADUAL REFORM IN A GLOBAL CONTEXT

A snapshot in time may show China's exchange rate policy to be a major hindrance to further economic growth. It is important, however, to note that China has been gradually appreciating the RMB in line with macro-economic and international pressures for nearly a decade, with a brief intermission after the 2008 financial crisis. Since 2005, the RMB has appreciated over 26%, and official documents from leadership advocate continued exchange rate flexibility. This appreciation can be used to test expectations of increased exchange rate flexibility. Based off the above analysis, a stronger RMB would be expected to create increased household consumption and services as a percent of GDP. A reduction in industry and net exports is expected as well. A stronger RMB would also correlate with a reduced rate of foreign exchange reserves and trade surplus.

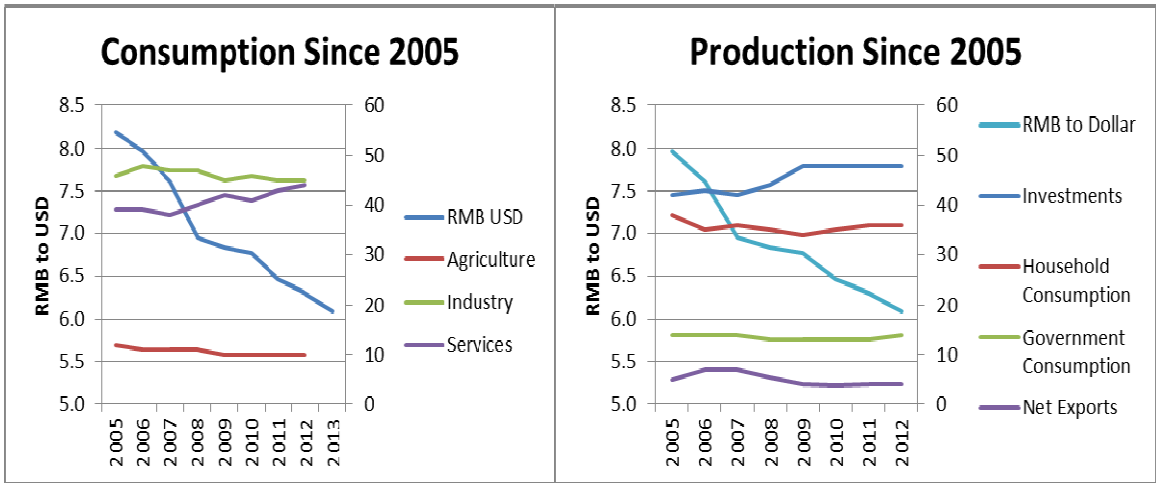

Figure 6. Impacts of RMB Appreciation on Consumption and Production Since 2005[74]

[74] Economic Research, Federal Reserve Bank of St. Louis, "China and U.S. Foreign Exchange Rate, Board of Governors of the Federal Reserve System"; The World Bank, "The World Bank Database."

A side-by-side comparison of national consumption and production relative to exchange rate appreciation shows several trends. An analysis of national consumption since 2005 shows a slight decrease in industry and agriculture as a percent of GDP. Conversely, services have offset this decrease and risen as a percentage of GDP. This trend is in line with what is expected. As industry became less profitable, greater investment would move toward services. The impact of RMB appreciation on production is less pronounced. Consumption from both households and government appears to remain relatively stable whereas net exports slightly decreased and investments slightly increased. It would be expected that an appreciation in the RMB would result in an increase in household consumption as consumers accumulated greater purchasing power. It is important to note that although the RMB has appreciated, the associated policies of financial repression and capital controls are still in place. These policies still undermine consumer purchasing power.

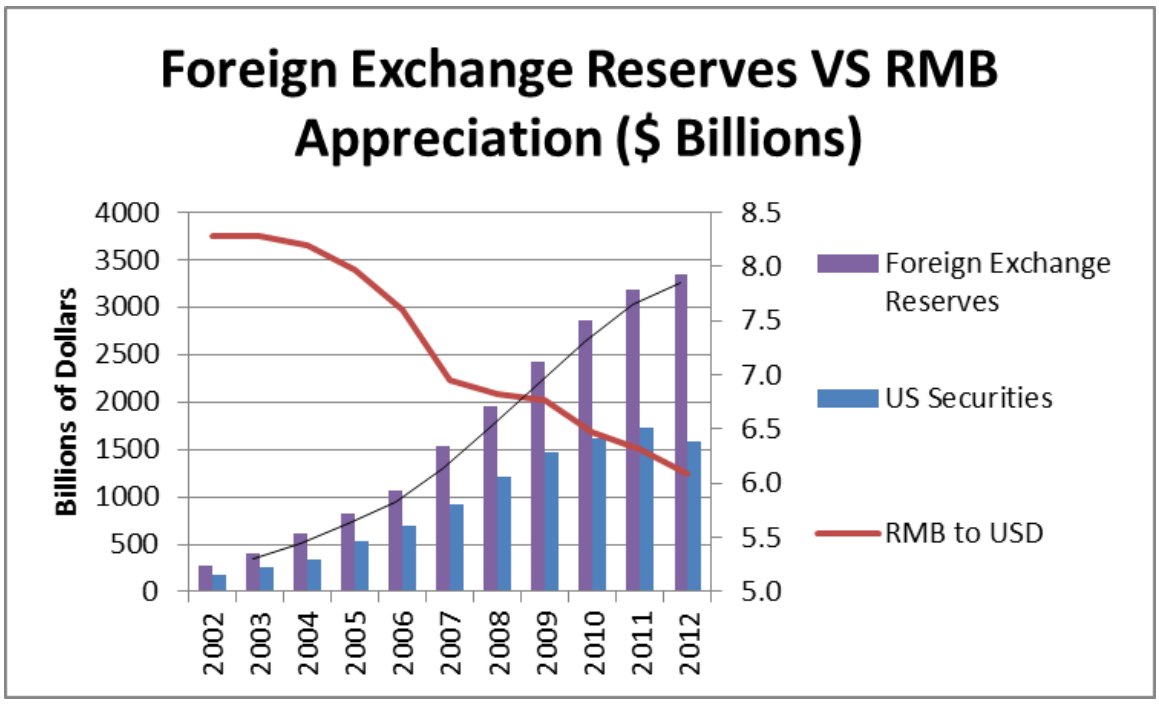

Figure 7. Effects of RMB Appreciation on China's Foreign Exchange Holdings[75]

A decrease in purchases of U.S. dollars is expected as well. Since China no longer needs to purchase as many dollars to keep a devalued currency, the holdings of foreign reserves would be expected to increase at a lower rate or even decrease. The above chart appears to confirm this prediction. The composition of China's foreign holdings is not publically accessible, but it is suspected to be comprised mostly of the U.S. dollar. In 2004, foreign reserves increased 28%, but between 2011 and 2012, reserves increased only 4%. Also, China's holdings of U.S. securities actually decreased.

An analysis of RMB appreciation since 2005 may be too short to determine definitively the real extent of exchange rate policy on economic rebalancing. Also, numerous other international factors affect economic growth. The financial crisis of 2008, for example, likely played a role in reducing exports. Many of China's trading partners have also engaged in currency devaluation including Japan and the United States. The devaluation of a trading partner's currency would also affect the trade

[75] Economic Research, Federal Reserve Bank of St. Louis, "China and U.S. Foreign Exchange Rate, Board of Governors of the Federal Reserve System"; U.S. Department of the Treasury, *Foreign Portfolio Holdings of U.S. Securities*, 8–37.

imbalance, which may also be a factor in decreasing reserves. China is likely to reduce purchases of the U.S. dollar if it suspects the dollar is going to decline in value. Although it is difficult to parse out the individual impacts of an increasing RMB in the context of numerous global factors, careful comparison overtime will help determine the impact of RMB appreciation.

D. CHALLENGES OF GRADUAL APPRECIATION

Although China has appreciated the RMB over the last decade, the rate of appreciation has been, and many in America argue, painfully slow. Slow reform is not new to China, as it took 15 years to meet the requirements of the WTO. Future progress will likely continue to be slow as numerous barriers to rapid appreciation must be carefully overcome. To continue progress toward a market-driven economy, many challenges will need to be overcome including unemployment, politics, and sequencing.

Throughout the last decade, China has maintained that its currency policy reflects the desire to maintain stability as opposed to gaining an unfair trade advantage. This claim may contain a large degree of truth. China currently has a labor force of over 750 million workers, which accounts for 26% of the world's total workforce. Despite miraculous growth in GDP over the past decade, Beijing is still struggling to keep up with the growing number of Chinese looking for employment. Experts estimate that China has between 17 and 45 million unemployed as of 2009. The unemployment dynamic is different for the CCP than it is for leaders in the United States. The CCP relies on economic growth and high levels of employment for legitimacy to remain in power. Without continued success on these fronts, China may face domestic upheavals, and possibly, a regime change. In the past, China's growth has been driven by manufacturing and exports. A devalued RMB has benefitted these sectors by making exports cheaper compared to countries with stronger currencies. The CCP realizes, however, that this growth is coming at the expense of the service sector, which tends to be more labor intensive. China's slow rate of currency appreciation may be a reflection of the CCP's attempts to shift to a service driven economy without triggering an economic slowdown

or high levels of unemployment. A rapid rate of appreciation may be seen as a threat to domestic political stability.[76]

Another barrier to rapid change is politics. Financial repression and imbalanced growth have created vested interests in the current system. Many officials maintain power and prestige by controlling resource and credit allocation. Businesses in the sectors of the economy that benefit from imbalanced growth receive subsidies and increased profit. These subsidies along with regulation act as a barrier to entry for competition. Reform is a threat to those who benefit from the current investments. Despite the economic need to change, mobilized special interests will oppose a more flexible exchange rate.[77]

Proper sequencing and timing is another challenge to reform. China's exchange rate policy is intricately linked to complimentary policies like capital controls and interest rates. Any reform will require careful timing to mitigate the harmful effects of one policy change on another. Reform must be comprehensive as opposed to piecemeal. Although a detailed roadmap is impossible to create due to unpredictable economic developments, a broad sequencing scheme can provide guidance. The first step would be gradual appreciation of the RMB to market levels. To prevent large capital flows, capital controls must still be utilized, particularly on capital inflows. Next, the PBoC must be granted more independence, and allowed to pursue anti-inflationary monetary policy; moreover, it would be able to move away from artificial administrative controls on inflation. Concurrently, financial regulation must be established to enhance financial and banking markets. Regulation in a broad sense refers to laws that reduce barriers to information and enforcement, but also allow a level of governmental direction. Strong financial markets will allow for the liberalization of deposit interest rates, which must be done in stages to prevent excessive credit expansion. Control of lending rates must also be done gradually to prevent excessive capital flows from banks to non-banking financial institutions. Further currency stability would be encouraged by greater use of the RMB to settle current account transactions. Greater use of the RMB as an international currency

[76] Susan Aaronson, "How China's Employment Problems Became Trade Problems," *Global Economy Journal* 10, no. 3 (2010): 1–25; Lardy, *Sustaining China's Economic Growth After the Global Financial Crisis*.

[77] The World Bank, *China 2030: Building a Modern, Harmonious, and Creative Society*, 125.

allows for greater effectiveness of monetary policy. Lastly, the process for approval of inward and outward FDI should be abolished. Outward FDI would allow citizens greater access to foreign financial institutions and reduce upward pressure on exchange rates. Restrictions on short-term inward FDI should be removed last to lessen the impact of an influx of hot money. This approach entails risk, as there are many moving parts. To mitigate this risk, reform and transitioning should be stretched out over many years with constant reassessment and changes as necessary. Like past reforms, exchange rate policy reform will require crossing the river by feeling for stones.[78]

[78] The World Bank, *China 2030: Building a Modern, Harmonious, and Creative Society*, 398–401.

V. CONCLUSION

The research question underlying this thesis sought to determine how currency devaluation has impacted China's goals of rebalancing toward a consumption driven economy. It also sought to examine the winners and losers of currency devaluation within the Chinese economy, as well as determine implications for the American economy. This thesis argues that currency devaluation was beneficial to economic growth in the past, but will be an impediment to future growth because the devalued RMB contributes to an incentive structure that results in a misallocation of resources, and therefore, imbalanced growth. This unequal growth has benefitted certain sectors of the economy including exporters, particularly low-end manufacturing, and import competing businesses. Other sectors, including importers, high-end manufacturing, consumers, savers, and the services sector have been harmed by currency devaluation. To transition to consumer driven growth, consumers need resources. Since the current system undermines consumer purchasing power through lower savings and higher prices for tradable goods, consumer driven growth has been impeded. Also, high-end manufacturing that requires multiple inputs, are relatively more costly due to the implicit tariff on imports. This situation undermines many of the strategic industries China intends to pursue.

A. EXCHANGE RATE POLICY

China's exchange rate policy exists in a global structure with no overarching rule set. After the United States abandoned the gold standard in the 1970s, countries have had the freedom to pursue a fixed, floating, or managed exchange rate policy according to their economic interests. China, for over a decade, has pursued a managed or crawling peg, whereby, it has pegged its currency to the U.S. dollar at an artificially low rate, but have allowed it to slowly appreciate. The process of maintaining this policy is complex and affects other aspects of the financial sector. China's central bank, the PBPC, executes the PRC's monetary policy. The PBoC maintains a devalued RMB by selling domestic currency and buying U.S. dollars, which results in enormous foreign reserves that alters the supply and demand of the currencies, which drives the U.S. dollar up, but the RMB

down. To prevent domestic inflation, the central bank must direct state controlled commercial banks to maintain high reserves and pay low interest rates. This process limits the supply of the domestic RMB and controls inflation, but it forces savers to accept low interest rates on savings. Also, to prevent foreign investors from buying RMB in anticipation of appreciation, capital controls are placed on the RMB. Access to China's currency is limited, which prevents it from becoming utilized as an international currency. China's policy of maintaining a crawling peg has allowed it to maintain a devalued RMB, but it has also harmed savers, increased reserves, and limited investment.

The above process shows the interconnectedness of policies related to exchange rates. The PRC, to maintain a devalued currency, must also engage in financial repression and capital controls. These two related policies contribute in many ways to undermine consumer driven growth. The financial repression of lower interest rates placed on savings has acted as a mechanism for wealth transfer from savers to government investment. The low rates allow the PRC to borrow money cheaply and keep inflation low, but it robs millions of Chinese citizens from interest income. Also, capital controls exacerbate the situation by eliminating alternative investment opportunities for Chinese citizens abroad. A devalued RMB undermines consumer wealth by increasing the price of imports, which undercuts competition and raises prices. Moreover, the associated policies of financial repression and capital controls further undermine consumer wealth.

China's exchange rate policy has been a cornerstone of its investment driven economy. The PRC has directed capital investments into infrastructure, industry, and SOEs. A devalued currency enables this process in two ways. First, exports were relatively cheaper in international trade, which brought in large amounts of FDI and tax revenue. Second, lowered interest rates allowed the PRC to borrow at low cost. Savers involuntarily subsidized government investments. This model has turned China into a manufacturing powerhouse. In 2010, the PRC overtook the United States as the world's largest manufacturing economy. Despite past successes, the investment driven model appears to have reached a point of diminishing returns. Government investments are becoming increasingly less profitable. Also, government investment has created artificial imbalances in its economy that will be necessary to overcome to continue steady growth.

B. IMBALANCED GROWTH

The investment driven growth model that turned China into a manufacturing powerhouse has also created economic imbalances. Two approaches to measuring this imbalance look at economic production and economic expenditures. The expenditure approach looks at how the nation's resources are spent through private consumption, governmental consumption, investment, and net exports. Over the past decade, the expenditure approach shows increases in investment and net exports, but a decrease in consumption. This imbalance contrasts other developing and developed countries, such as like India and the United States, in which consumption is the leading factor of growth. A devalued RMB contributes to this phenomenon by increasing competitiveness of exports relative to competitors. Also, more expensive imports and low savings returns undermines the wealth of private citizens, which reduces private consumption. The production approach, which measures agriculture, industry, and services, also shows imbalances toward industry due in part to a devalued RMB that acted as a subsidy to exports and a tariff on imports. This incentive structure made exports, mainly manufacturing, more profitable. Since it was more profitable, it received greater investments. The opposite was true for services, which are driven more by consumers.

These imbalances create artificial winners and losers. A devalued currency acts as a subsidy to exports and a tariff on imports. As a result, exports greatly benefit from this set up. Exports generate artificially high profits, which in turn, attract higher levels of investment. Simultaneously, import-competing businesses benefit because the implicit tariff makes imports more expensive. Domestic competitors can then raise their prices and generate higher profits. This process makes prices higher for the average Chinese citizen. The associated policies of financial repression and capital controls further undermine consumer purchasing power. Higher import prices also affect high-end manufacturing in products like vehicles, medical equipment, and sophisticated electronics. These products require large amounts of inputs, many of which are imported. Higher priced imports drive up the price of the finished good. This process makes it harder for high-end manufacturing to attract profits and investments. Lastly, the service sector is harmed by the current imbalance. Services tend to be overlooked by government

investment because their demand is often dispersed. Greater purchasing power in the hands of millions of Chinese consumers would better fill the economic demand of the nation's various services.

China's exchange rate policy also has a significant impact on the United States. Just as its policy creates artificial winners and losers in the Chinese economy, it also creates artificial winners and loser in the U.S. economy. One of the losers is exporters, especially those who export to China. A devalued RMB acts as a tariff on imports; therefore, goods shipped to China will be less profitable. Also, many of these firms compete unsuccessfully with cheap Chinese exports in other foreign countries. Firms that compete with Chinese imports also lose. The implicit subsidy to exports allows firms to lower their prices without cutting into their profit margin. By contrast, U.S. firms competing with these products must lower prices and lose profitability. This process lowers prices that benefit U.S. consumers. The American people have benefitted from low cost goods because of China's devalued RMB. Also, high-end manufacturing capable of buying cheap inputs are able to sell their products at an increased profit. Although the net gain or loss to the U.S. economy is still a matter of debate, it is clear that China's exchange rate policy has an unequal impact on the U.S. economy.

C. CHINA'S DOUBLE EDGED SWORD

The PRC has stated through various government documents that it desires to rebalance its economy from an investment driven model to a consumption driven model. The investment driven model of the past was successful in achieving rapid growth and industrial capacity. However, much of the high yielding opportunities identified by the government investment have been utilized. Market-based allocation of resources through consumption will be needed for future sustained growth. China's exchange rate policy is hindering this progress by enabling financial repression, inhibiting efficient capital allocation, facilitating imbalanced growth, undermining consumption, and creating friction in the international community. Financial repression, through low interest rates and capital controls, undermines consumer purchasing power, which is necessary for consumer driven growth. Also, consumers are better suited to fill the diverse economic

demands of a modern economy. Millions of Chinese with purchasing power will be able to distribute resources better to the areas of highest utility. A devalued RMB also facilitates imbalanced growth by creating an artificial incentive structure that favors industry and exporters at the expense of consumers, importers, and services. Lastly, China's exchange rate policy has caused friction with trading partners. This friction may lead to countervailing tariffs, which would undermine the stable international environment necessary for economic growth.

The PRC has been gradually appreciating the RMB since 2005, but challenges still exist in employment, politics, and sequencing that must be resolved prior to full exchange rate flexibility. Much of China's workforce relies on manufacturing and export oriented jobs. A rapid appreciation of the RMB could cause an unemployment shock. Since the PRC relies on stability for political legitimacy, this option is unacceptable. Gradual RMB appreciation will allow jobs to shift from industry to services in a more stable fashion. Another issue is political opposition. Large government investments have created entrenched special interests over the years. These groups will oppose action that undermines their narrow objectives, regardless of what is best for the economy. Also, reform will require careful timing and sequencing. Releasing capital controls before achieving RMB equilibrium could cause rapid appreciation and economic instability. The PRC must follow a gradual sequenced approach to avoid instability.

D. DISCUSSION

A major focus of the literature on exchange rates focuses on whether or not currency manipulation is expansionary or contractionary. A survey of numerous studies provided conflicting evidence, which led the authors to conclude that the effects of currency devaluation are country specific.[79] In the case of China, it would appear that devaluation was expansionary initially. A devalued currency attracted FDI and contributed to industrial capacity. Overtime, however, it appears that a devalued RMB will become contractionary. Once the industrial capacity is established, further growth

[79] Bahmani-Oskooee and Miteza, "Are Devaluations Expansionary or Contractionary? A Survey Article," 1–3.

requires innovation and consumption, which was established previously, is hindered by a devalued currency. Additional studies should focus not merely on GDP growth before and after the implementation of currency devaluation, but should focus on where the particular country is in development. Countries without an industrial capacity may benefit from currency manipulation, whereas countries with an industrial capacity may be harmed. Further research should focus more on a nation's level of development.

Along those same lines, this thesis neither confirms nor repudiates the economic theories of liberalism or mercantilism. Government intervention appears to have greatly benefitted China's development up to this point. Friedrich List's argument that the government should intervene in industry appears to hold true in the case of China. Government directed investments and a devalued RMB has turned China from an agricultural society into the world's factory. Conversely, liberalism could also argue that this process has led to imbalanced growth, which is unsustainable. Whether or not China is able to transition to a flexible exchange rate policy without instability or a major economic downturn has theoretical implications. A smooth transition will give credibility to government intervention in economic development, but a large economic downturn would vindicate the liberalist argument that government intervention should remain minimal.

An issue of concern raised by this thesis is the level of political animus directed at the PRC's exchange rate policy. Public consensus appears to be largely against China's current policy of gradual appreciation. Many lawmakers have unsuccessfully pushed laws that would establish countervailing tariffs on China's imports. This outlook appears to overstate the harm done to the United States and also underestimates the harm that could be done by rapid appreciation of the RMB. A rapid increase in RMB would harm several sectors of the economy including consumers and high-end manufacturing. Also, it cannot be guaranteed that jobs lost to China would come back to the United States. A rapid increase would also mean that the PRC would no longer need to purchase U.S. treasuries. Since China is the largest purchases of U.S. debt, a sudden stop in purchases without the entrance of a new purchaser could raise interest rates on U.S. debt. America's large budget deficit and debt level are not currently in the best position to handle a rate

increase. It is currently in America's best interest to support a smooth gradual appreciation of the RMB as opposed to a rapid increase brought on by countervailing tariffs.

This hypothesis of this research was that China's exchange rate policy does not have a net benefit to economic progress, but rather benefits certain sectors of the economy at the expense of others. The research finds this hypothesis party correct, but the reality is more nuanced. China's exchange rate policy has had a net benefit to economic growth in the past by building a manufacturing base, infrastructure, and attracting FDI. A devalued currency is only a part of China's investment driven growth model. To maintain a devalued currency, other policies like low interest rates on savings and capital controls are required. The plurality of the related policies along with a devalued currency has contributed to imbalanced growth. To maintain future economic progress, the RMB will need to be gradually and systematically appreciated.

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